

THE BRITISH JOURNAL

OF

TUBERCULOSIS

Vol. XXVI.

January, 1932.

No. 1.

SYMPOSIUM.

TWENTY-FIVE YEARS' PROGRESS IN THE TUBERCULOSIS MOVEMENT.

THE BRITISH JOURNAL OF TUBERCULOSIS, founded in January, 1907, has completed its first quarter of a century of service. In January, 1927, the JOURNAL celebrated its "coming of age" with a special symposium, and various leaders in the tuberculosis movement furnished contributions. In order to mark the twenty-five years of the JOURNAL's existence, we have been favoured with a series of striking communications from a number of distinguished physicians and surgeons interested in the tuberculosis movement. These, while indicating something of the progress accomplished in the past twenty-five years, also indicate lines along which further advancement can still be made. The late Sir Clifford Allbutt wrote in 1907 for the first number of our JOURNAL an impressive "Retrospect," and this was followed by an "Anticipation" by Sir Robert Philip, who, while claiming that "the prospect of the future is largely the reflection of the present," urged that for a great forward movement "what is chiefly required to ensure a successful issue is a fuller and juster conception on the part of our people as to the enormous proportions of the evil to be faced, and their intelligent insistence that the authorities will be sufficiently wise and courageous to adopt measures commensurate with the greatness of the need." During the past quarter of a century State enterprise and voluntary endeavours have wisely and effectively co-operated in applying means for the prevention and arrest of tuberculosis, and for the encouragement of researches into the various medical and social aspects of the disease and its consequences. In the development of these enterprises this JOURNAL has played a notable part, and has sought to carry out the aims indicated in the first number. We take this opportunity of thanking the many contributors, friends, and supporters of the JOURNAL who have so effectively assisted the editor and publishers in maintaining our quarterly in the cause it seeks to serve.

FROM SIR ROBERT W. PHILIP,

M.A., LL.D., M.D., F.R.C.P.E., F.R.S.E.,

Hon. Physician to H.M. the King in Scotland; Consulting Physician, Royal Infirmary, Edinburgh; Professor of Tuberculosis and Examiner in Medicine in the University of Edinburgh; Vice-Chairman of the National Association for the Prevention of Tuberculosis.

In inviting me to send a few words for the opening number of the twenty-sixth volume of the BRITISH JOURNAL OF TUBERCULOSIS the editor reminds me that the first issue of the JOURNAL in 1907 contained a "Retrospect" by Sir Clifford Allbutt and an "Anticipation" by myself. He has now asked me to say in some two hundred words (1) what has been achieved during the past quarter of a century, and (2) what shape endeavour should take for the future. A compressed tabloid truly!

Let me, in the first place, offer my congratulations on the jubilee of the JOURNAL and the position which the Editor's untiring efforts have won for it in the medical world.

In my "Anticipation" of 1907, *inter alia*, the plea was urged by me that the successful handling of tuberculosis was a matter for the State, Municipalities, County Councils, and other Local Authorities, and that the solution of the problem called for a carefully co-ordinated scheme, incorporating notification, the tuberculosis dispensary, hospital for dying cases, sanatorium for curable cases, and working colony. There was need likewise for fuller knowledge on the part of our people, and their intelligent insistence that the authorities should adopt measures commensurate with the greatness of the need.

In the interval since 1907 each of these claims has been largely realized. There has been developed in Great Britain a *uniform* scheme on those lines, functioning throughout the entire kingdom, as in no other country in the world. Twenty-five years ago there were not more than two or three sanatoriums in Great Britain and only one tuberculosis dispensary. There now exist more than three hundred sanatoriums and hospitals and some five hundred tuberculosis dispensaries, forming integral parts of schemes approved by the central health authorities. Notification has now for years been compulsory. In 1929 the notifications in England, Wales, and Scotland numbered 86,296. The mortality has dropped in amazing fashion. Comparing the mean death-rate per 100,000 of the population during the *first* five years (1905-09) with the mean death-rate during the *last* five years (1926-30) the mortality from pulmonary tuberculosis has fallen in England and Wales from 113 to 77, and in Scotland from 135 to 68; and the mortality from other forms of tuberculosis has fallen in England and Wales from 48 to 17, and in Scotland from 73 to 28. The advances made in the diagnosis and treatment of tuberculosis in all its

forms have been remarkable. Lastly, through many channels, but especially by continuous effort on the part of the National Association for the Prevention of Tuberculosis, the public has been educated. The morbid dread of the disease (*phthisiphobia*) has been replaced by an intelligent attitude towards the many-sided problem of tuberculosis.

During the years to come well-trying lines must be maintained. Action under the Tuberculosis Scheme is not stereotyped, but can be adjusted in view of new facts and fresh conceptions. Each element in the organized scheme must be refined and made to pull its proper weight, and there must be an harmonious co-ordination throughout. Attention must be shifted more and more towards the *earliest* indications of tuberculous infection—not to the neglect of later manifestations, but with a view to their better interpretation and progressive elimination. In this way a great deal may be done not only to reduce the *mortality*, but, very specially, to limit the *morbidity* of the disease. The protection of the child from the risks of infection, *immediate* and *ultimate*, affords the key to the final triumph.

FROM SIR ARTHUR NEWSHOLME,

K.C.B., M.D., F.R.C.P.,

Late Principal Medical Officer to the Local Government Board ; Lecturer on Public Health, Johns Hopkins University ; and Crown Nominee of the General Medical Council.

When the first number of the BRITISH JOURNAL OF TUBERCULOSIS appeared I was Medical Officer of Health of Brighton, and had participated in the earlier action taken by Dr. Niven, of Manchester, and other pioneers in the movement for control of tuberculosis by public health measures which followed on Koch's discovery of the tubercle bacillus, and the investigations on the methods of spread of tuberculosis rendered possible by this discovery. Official medical opinion in this country was chiefly sympathetic with measures to prevent bovine infection, and direct action affecting the human patient was being deprecated. But in a few towns voluntary notification of cases of pulmonary tuberculosis by private practitioners had been initiated with encouraging results ; and in Sheffield, under a local Act, this notification had become compulsory for a period of five years. Experience showed that notification was successful in so far as it led to efforts being taken which benefited the patient, and that sanatorium treatment was the most successful method of ensuring notification of cases. In my own town this treatment was carried out on the plan of a short course—usually a month—of educative treatment, nearly every known case undergoing this course of treatment. It was so popular that in recurring acute attacks of illness the same patients begged to be and were readmitted. At the Local Government Board the task of initiating compulsory

notification of tuberculosis was beset with difficulties, and it was found necessary to proceed by stages. First, Poor Law cases were required to be notified to the medical officer of health; next, also all patients receiving hospital treatment; thirdly, every case of pulmonary tuberculosis; and, lastly, all cases of tuberculosis. The work of the Departmental Committee on Tuberculosis, which followed on the allotment of funds from the Treasury for the building of sanatoria under the National Insurance Act, 1912, served to focus and crystallize efforts already partially at work. In particular, the dispensary organization initiated in Edinburgh by Sir Robert Philip was placed on an official basis, the dispensary being made the centre of the clinical and preventive work of each local authority; and the advance which has steadily been made in subsequent years is evidence of the value of the organization then evolved under the central supervision of the Government and the local control of each county or county borough medical officer of health. It cannot be said that clinical and preventive activities even now are as completely co-ordinated and co-operative as is necessary, or that either private practitioners or medical officers of health are all "pulling their weight" in promoting this end. But that great advance has been made and with most beneficent results is without doubt. The recent transfer of Poor Law infirmaries to county and county borough councils will enable even more beneficent and extended work to be done in the hospitalization of acutely infectious, of bedridden, and of advanced cases of pulmonary disease, a measure which I have always regarded, and still regard, as essential if large-dosed infection of susceptible contacts is to be prevented. During the years, some of the outstanding events of which have been briefly indicated above, the BRITISH JOURNAL OF TUBERCULOSIS has been a medium for dissemination of up-to-date scientific data and for the publication of original articles on the various aspects of tuberculosis, and has thus made a valuable contribution to the phenomenal reduction in the incidence of tuberculosis which has occurred. I hope it will long continue to do so.

FROM PROFESSOR DAME LOUISE MCILROY,

D.B.E., HON. D.Sc. (BELFAST), M.D., D.Sc. (GLASGOW),

F.C.O.G., L.M. (ROTUNDA),

Professor of Obstetrics and Gynaecology, University of London, Royal Free Hospital; and Surgeon, Marie Curie Hospital.

I am delighted to offer my congratulations upon the excellent work accomplished during the past twenty-five years by the JOURNAL OF TUBERCULOSIS, and to add my best wishes for its future prosperity. The JOURNAL has helped to make the last quarter of a century the greatest period of progress which has taken place in the history of the

campaign against tuberculosis. Public opinion has been educated to the dangers of the disease and the great possibilities which lie in the measures for its prevention. We are now beginning to see the successful results of the campaign which has had as its aim the stamping out of tuberculosis both in man and animals. The JOURNAL has been fearless in its expression of opinion, and has not hesitated to give criticism of methods of prevention and cure which later were proved to be of little value. It has encouraged theories which ultimately were verified and became the forerunners of facts which have now stood the test of time. The subject of tuberculosis is one which concerns every member of the community. Few of us have not been brought into contact with the sufferings due to the disease and its tragic consequences. The victims of tuberculosis are drawn as a rule from the youth of the nation, the extent of whose loss can never be properly estimated. Perhaps one of the most important branches of the crusade has been in the direction of supplying non-infective milk to the country. The feeding of infants is dependent upon the adequate supply of wholesome milk. It is a matter of great concern to public health authorities and medical officers of health that milk has been proved to be under certain conditions the source of death-dealing disease. Progress in regard to the prevention of tuberculosis through infected milk seems slow, but so many financial considerations are involved. The voice of the JOURNAL has carried far and wide, and it has had an enormous influence in preventive propaganda. I feel sure that its sphere of usefulness in the future will expand, and I hope that for many years it will still continue to be under the able editorship of Dr. T. N. Kelynack. I wish him every success in the splendid work he is doing for the cause of suffering humanity.

FROM PROFESSOR SIR HUMPHRY D. ROLLESTON, BART.,

G.C.V.O., K.C.B., D.C.L., LL.D., M.D., F.R.C.P.,

Physician-in-Ordinary to H.M. the King; Regius Professor of Physic in the University of Cambridge; formerly President of the Royal College of Physicians of London.

It is nearly half a century ago since one of the greatest discoveries, that of the tubercle bacillus, was made by Robert Koch in 1882, and for half of that intensely active period of research and new ideas the BRITISH JOURNAL OF TUBERCULOSIS has earned the gratitude of the medical profession by chronicling the advances and changing opinions of this very important subject. Of the various new forms of treatment some have had their day and ceased to be; others now stand out as of proved value and efficacy. Thus, the sunlight treatment of surgical tuberculosis by Professor A. Rollier of Leysin and Sir Henry Gauvain at Alton has come to stay in the most happy circumstances. In the

6 THE BRITISH JOURNAL OF TUBERCULOSIS

treatment of pulmonary tuberculosis, artificial pneumothorax, though suggested by James Carson in 1822, did not come into use in this country until a few years before the Great War. Since then the colony system, originated at Papworth, near Cambridge, by Sir Pendrill Varrier-Jones, has in the face of great difficulties shown how sanatorium treatment can be successfully supplemented and improved; for it opens to subnormal and tuberculous men a secure and self-satisfying means of earning a livelihood in a protected and admirably organized environment.

FROM PROFESSOR S. L. CUMMINS,

C.B., C.M.G., M.D.,

David Davies Professor of Tuberculosis, Welsh National School of Medicine.

On the completion of the first quarter of a century in its history as a scientific publication the *BRITISH JOURNAL OF TUBERCULOSIS* mirrors a period of many advances and much progress, and it is of interest to review briefly the successes and failures of the past twenty-five years. During the whole of this period the fall in the tuberculosis mortality, which had started round about 1851, has continued, and the explanation, as has been so ably pointed out by Sir George Newman, must be sought chiefly in the general rise in the standard of living which has characterized this period rather than in any specific anti-tuberculosis measures. The fact remains that we have not as yet discovered a special prophylactic agent capable of direct use in the prevention of tuberculosis, although we have exploited with considerable success the general measures of hygiene which count for so much in the prevention of this as of other bacterial diseases. It is especially in the direction of the "arrest" and "cure" of diagnosed tuberculosis that progress has been rapid during the last quarter of a century. In this brief period we have seen a vast improvement in sanatorium treatment, which has followed the conscious or unconscious application of the principles enunciated by Marcus Paterson, based upon the discoveries of Wright, Inman, and others. A still more remarkable development has followed upon the early work of Carson in this country and Forlanani in Italy on collapse-therapy. Artificial pneumothorax has become a routine measure in suitable cases, and the wonderful developments of chest surgery in the direction of phrenic evulsion, thoracoplasty, etc., offer just cause for present congratulations, and open up a splendid vista for future success in the treatment of pulmonary tuberculosis. The development of the treatment of pulmonary tuberculosis by metallic preparations, especially by the salts of gold, first suggested by Robert Koch, has recently made important advances through the work of Adolf Feldt in Germany, and later of Mollgaard in Denmark. The introduction of sanocrysin by the

latter has made a valuable addition to our methods of treatment. It is within the last quarter of a century, too, that the great advances in orthopædic surgery, which we owe to Sir Robert Jones, Sir Henry Gauvain, and a number of other modern workers, have been brought to bear on bodily deformities in general and also in a special degree on surgical tuberculosis. Not only have new methods been developed, but we have found out the limitations of old ones; and it is a matter of congratulation that the exploitation of tuberculin in treatment has been reduced to safe limits and confined to certain forms of tuberculosis, instead of being applied widely and dangerously to all forms of the disease. With all this progress, the fact remains that our knowledge of the disease is as yet very imperfect. We stand, as it were, at the threshold of what may prove to be a new era in the bacteriology of tuberculosis and allied diseases. What will the next twenty-five years reveal with regard to the alleged filter-passing stage of the tubercle bacillus? Shall we live to see general confirmation of the suggestion that the virus can pass through the placenta and infect the unborn infant? Are we to accept the recent view of a series of stages in the life-history of Koch's bacillus? These questions await their final answer through the work of highly specialized research workers. Let us hope that in the future, as in the past, the BRITISH JOURNAL OF TUBERCULOSIS will afford an unbiased intermediary for the publication of new work on this fascinating and, as yet, little understood problem.

FROM SIR ROBERT JONES, BART.,

K.B.E., C.B., D.Sc., LL.D., F.R.C.S.,

Consulting Surgeon, Royal Southern Hospital, Liverpool, and Royal Infirmary, Liverpool, etc.

The BRITISH JOURNAL OF TUBERCULOSIS has rendered great assistance in dealing with the problem of tuberculosis. During the last twenty-five years tremendous advances have been made, and I think the country is now fully alive to the infective character of tuberculosis and to the fact that by concentrated effort in a comparatively short time the disease could be practically eliminated. What is needed primarily is a pure milk supply. The Ministry of Health has given considerable assistance, and now, happily, we can in most towns secure milk free from the tubercle bacillus. We want, however, to organize its distribution in such a way that the price is within the range of the poorest of our people. All our energies should be engaged in an attack upon tuberculosis in cows, and to this end it is essential that our veterinary surgeons who inspect herds should be independent of the patronage of farmers. I congratulate the editor on the work his JOURNAL has already accomplished, and I hope it will preserve its

8 THE BRITISH JOURNAL OF TUBERCULOSIS

vitality and service as long as tuberculosis remains to be fought. We rely on Dr. Kelynack's interest and energy still further to minimize the menace.

FROM SIR HENRY GAUVAIN,

M.A., M.D., M.C., F.R.C.S.,

Medical Superintendent of Lord Mayor Treloar Cripples Hospital, Alton, and Morland Clinics, Morland Hall, Alton; Consulting Surgeon (Tuberculosis) to the Counties of London, Essex and Hampshire, etc.

Confining myself to non-pulmonary tuberculosis, striking and notable advance has been made on the following lines: earlier and more accurate diagnosis; early and efficient treatment in well-staffed and well-equipped special country hospitals; recognition of the essential importance of conservative treatment with all that it implies; and the adoption of adjuvant measures to supplement and not supplant that treatment by the utilization of every means available to help the patient, such as orthopaedic aid, the recognition of the value of sunlight, fresh air, sea-bathing, etc. Scrupulous care is now taken to avoid secondary infection of local tuberculous lesions. Preventive measures are attaining increasing importance, and after-care, with all that it embraces for both the medical and social welfare of the patient, is being generally undertaken. Patients are now also frequently educated or trained during treatment. For the future the immediate and urgent need is prevention of access of the tubercle bacillus to a susceptible subject. Milk should be efficiently and universally pasteurized to prevent bovine infection. Education in hygiene will do much to diminish the incidence of infection with the human bacillus. The increasing administrative control of tuberculosis in all its phases is being, and will be still more, a powerful factor in eradication of the disease. The period under review coincides with the life of the BRITISH JOURNAL OF TUBERCULOSIS and also with my own association with surgical tuberculosis. I have been a subscriber to the JOURNAL since its inception, and regard it with feelings of affection and gratitude. Under the able editorship of Dr. T. N. Kelynack the JOURNAL is indispensable to tuberculosis workers, who owe him and his paper much gratitude. Especially has it generously helped and encouraged the young worker, and kept us all in touch as well with what is being done in this branch of medical science. May the JOURNAL continue to flourish and prosper until the disease it is combating is conquered and finally eradicated.

TWENTY-FIVE YEARS' PROGRESS

9

FROM SIR PENDRILL VARRIER-JONES,

M.A., M.R.C.P.,

Medical Director, Papworth Village Settlement.

It is extraordinarily pleasant in these days of change and uncertainty to congratulate the BRITISH JOURNAL OF TUBERCULOSIS, which, during twenty-five years, has pursued a path with steadfastness of aim. The aim of this JOURNAL has been to forward the campaign against tuberculosis. That some progress has been made there can be no doubt, but the cynic who said that if this progress is not accelerated there will be no tuberculosis problems to solve is not far from the truth! Our little medical scratchings on the surface may have done some good, but the large factors of economics and sociology have helped us enormously. Further progress may be made, and made quickly, by applying the science of economics and sociology in a purposeful way directly aimed at our medical problem. The large view must be taken. Attention must not be limited solely to unessential details; methods of treatment must not follow change of fashion. They have been too apt to do so in the past. Negative results should be published and studied quite as much as positive ones. Only thus will much waste of time and effort be avoided. "The new lines of biochemical investigation show great promise, and should be pushed forward with the utmost vigour. Then, and only then, we shall begin to realize that to classify our cases on the invasion and destruction of one organ is unjustifiable, and we shall discard any such anatomical classification of phthisis as being unscientific. I hope for the substitution of a scientific method for the estimation of systemic disturbances, a method providing a more exact biological measurement of such disturbance as that caused by the tubercle bacillus." I said this some years ago. Progress has been made, but the extent of the field opened up has not been grasped. The pages of the BRITISH JOURNAL OF TUBERCULOSIS I am sure will in the future be open to workers in this field.

FROM L. S. T. BURRELL,

M.A., M.D., F.R.C.P.,

Physician to the Royal Free Hospital and the Hospital for Consumption and Diseases of the Chest, Brompton; author of "Recent Advances in Pulmonary Tuberculosis," etc.

Twenty-five years have now passed since the BRITISH JOURNAL OF TUBERCULOSIS was first published. During that time great changes have taken place in the treatment of tuberculosis. Tuberculin had already been tested and found disappointing by the majority of workers, and during the last quarter of a century it has lost rather than gained in popularity. Disappointment, however, at the failure of this method

of treatment has been more than counterbalanced by the success of others. Artificial pneumothorax, which for all practical purposes was not used in this country in 1907, has now been proved to be one of the best methods of resting the lung, and it has not only prolonged life, but has actually led to a cure in a large number of cases which previously would have been considered incurable. The prognosis in a case of pulmonary tuberculosis has completely changed since artificial pneumothorax has been introduced. Following collapse of lung by artificial pneumothorax, surgical measures have made large strides during the last few years. Phrenic avulsion has now become one of the most common procedures. Thoracoplasty has also developed, and the technique has been improved to such an extent that it is no longer a drastic or very dangerous procedure. To-day, perhaps, it is not used quite so much as a year or two ago, since the initial success led to its employment in cases which are now considered unsuitable. It is now realized that, although the actual operation is comparatively free from danger owing to improved technique, yet the late results of the operation are such that it should only be employed in a few cases. As regards medicinal treatment, the introduction of sanocrysin is the only big step forward which has been made during the last quarter of a century. Various metallic compounds, including gold, have long been tried, but the reactions and effects of them were so severe that they fell into disuse. Sanocrysin and similar gold preparations can now be given without serious risk, provided the dosage is carefully regulated. Although still in the experimental stage, there can be no question that these preparations have a very definite effect upon a tuberculous lesion both in the human being and the animal, as proved by experiment. The BRITISH JOURNAL OF TUBERCULOSIS has always kept its readers up to date in the various developments which have taken place, and Dr. Kelynack is to be congratulated on the twenty-fifth birthday of the JOURNAL.

FROM NOEL DEAN BARDSWELL,

M.V.O., M.D., F.R.C.P.,

Principal Assistant Medical Officer, Public Health Department, London County Council; formerly Medical Superintendent, King Edward VII. Sanatorium, Midhurst.

Those of us who have been associated with tuberculosis work during the past twenty-five years can best appreciate the immense progress that has been made during this period. The casual and inadequate treatment of the tuberculous population that used to prevail has been replaced by a network of schemes for diagnosis and treatment which, in their efficiency and comprehensiveness, are in advance of anything to be found the world over. In this country

official administration of the control of tuberculosis and the treatment of the tuberculous has been grafted upon voluntary effort and experience, and the happy association of voluntary work with public administration is still continued, to the benefit of all concerned. It may safely be said that during the past twenty-five years the outlook for the individual tuberculous patient has improved out of all knowledge. Whereas in the past the tuberculous patient regarded himself as doomed, and was often disinclined in consequence to submit to treatment, nowadays there is a tendency on the part of the public to regard the disease too lightly, and to assume as a matter of course that a spell of sanatorium treatment will cure the disease. This attitude is the outcome and at the same time a tribute to the adequacy of the means of treatment provided, and to the confidence that the public have come to place in those responsible for providing it. From the clinical standpoint, advance also has been considerable, though less startling than on the administrative side. Treatment by artificial pneumothorax and the use of the plastic operations on the chest-wall are landmarks in progress. One must not overlook also the increased facilities now provided by learned societies and medical publications for the interchange of views and experience and the spread of special knowledge. It is much easier than in the old days for the tuberculosis worker to keep abreast with the world's work. In this important field of education the *BRITISH JOURNAL OF TUBERCULOSIS* has played a prominent part. The tuberculosis physician, surgeon, and administrator have all got good cause to congratulate the *JOURNAL* on its work, and to wish it a prosperous future.

FROM PROFESSOR SIR LEONARD HILL,

LL.D., F.R.S.,

General Supervisor, the London Light and Electrical Clinic and Institute of Physio-therapy.

The *BRITISH JOURNAL OF TUBERCULOSIS* during its twenty-five years has accomplished a notable educational service. We must proceed to work for a better future. The elements of nutrition must be understood if tuberculosis is to be conquered. The most essential thing now is to educate people to eat less white bread, nut fat, margarine, sugar, and lean meat, and more of the growth-promoting and disease-resisting foods—milk, butter, cheese, eggs, green food, peas and lentils, carrots, etc., and fruit. The experiments of McCarrison have shown that, given light, air and cleanliness, by proper feeding rats can be kept free of disease, while ill feeding of rats on the first-mentioned foods, so commonly eaten in our cities, leads to all the infections and inflammations of the different organs which dwellers in cities suffer

from. Cows should be kept in open-air clean shelters, not in filthy dark byres, and adequately fed with vitamin and lime, etc., containing foods so that tuberculosis is stopped in them. This is far more important than trying to get herds free from tuberculosis by the testing and weeding-out process. Exhausting cows by breeding them for very high milking quality is wrong, unless it is proved possible to make the food adequate to meet the strain. I wish the JOURNAL increasing powers for continued service.

FROM DR. JANE WALKER,

C.H., J.P., LL.D.,

Medical Superintendent, East Anglian Sanatorium and Maltings Farm
Sanatoria; Treasurer, Medical Women's Federation, etc.

I have been a subscriber to the BRITISH JOURNAL OF TUBERCULOSIS ever since its first publication. It is a most interesting paper, full of information and with excellent illustrations. I feel that we, who make a special study of tuberculosis, are well off in having two such organs as the BRITISH JOURNAL OF TUBERCULOSIS and *Tubercle*. We should badly miss either of them, for they are in a way complementary. We never can forget that tuberculosis is a subject which concerns the general public at least as much as the medical profession, and the BRITISH JOURNAL OF TUBERCULOSIS always has some ideas that will both interest and instruct that larger section of the community. Whether the general public in the future will become so well instructed in these matters as to render such a journal superfluous is for the future to decide, but in my judgment this is not likely to be the case for some time to come.

FROM EDWARD W. HOPE,

O.B.E., M.D., D.SC.,

Emeritus Professor of Public Health in the University of Liverpool; late Medical Officer of Health of the City and Port of Liverpool;

AND

B. T. J. GLOVER,

M.B., CH.B.,

Chief Tuberculosis Officer for the City of Liverpool.

The progress made in the prevention of tuberculosis during the last twenty-five years shows itself in a substantial fall in the death-rate from the disease during this period of time. There is good reason to believe also that the fall in mortality has been accompanied by a corresponding fall in morbidity; this fall in both case-rate and death-rate is no doubt due to the combined action of a number of factors, of which the great increase in the provision of sanatorium accommodation

is perhaps the most important. Twenty-five years ago the majority of patients suffering from phthisis had no other accommodation than the workhouse if they needed institutional treatment; now, well-regulated sanitary areas in England are in the position to make it possible for every patient requiring sanatorium treatment to receive it. The progress, for example, that has been made in this direction in Liverpool is striking: in 1916 there were 400 patients under sanatorium treatment, and all the beds available were occupied; in addition, 398 patients were on the sanatorium waiting list at the end of September in that year. Today there are 1,350 available sanatorium and hospital beds occupied, whilst the present sanatorium waiting-list consists of fifteen adults and no children, and the majority of these patients have already had one or more periods of sanatorium treatment. The change for the better is even greater than these figures suggest, because whereas in 1916 only 50 per cent. of the notified cases were given an opportunity of accepting public medical treatment, today every notified case is given this opportunity, and considerably over 90 per cent. of them accept it. Doubtless the example of Liverpool is but one of many to be found in England. In future years it would appear to be desirable to pay greater regard to the conditions of the family wherein a case of tuberculosis is found, as well as to the needs of the patient. Only too frequently is the course of sanatorium treatment interrupted because of the patient's anxiety in regard to the welfare of those left at home, and too often does a patient relapse after discharge and become a source of infection to his wife and children because the standard of living of the family is below that to which he was accustomed in the sanatorium. This wider outlook on the tuberculosis problem will no doubt entail increased expenditure before the good that accrues will result in a permanent reduction in the annual cost to the community of the treatment of this disease. One cannot be unmindful of the very valuable services which the *BRITISH JOURNAL OF TUBERCULOSIS* has rendered during the twenty-five years of its existence; particularly useful have been the sections dealing with new appliances and fresh preparations likely to be of service to the medical profession, and indeed to all who have in hand the curative aspects of tuberculosis, and there can be no doubt that the *JOURNAL* will continue its sphere of usefulness in the future.

14 THE BRITISH JOURNAL OF TUBERCULOSIS

FROM G. LISSANT COX,

M.A., M.D.,

Chief Tuberculosis Officer for the County Palatine of Lancaster; Chairman
Joint Tuberculosis Council.

I am glad to send my congratulations to the BRITISH JOURNAL OF TUBERCULOSIS on attaining its twenty-fifth birthday, and especially for its services in the cause of the prevention and treatment of tuberculosis. Everyone knows how the tuberculosis death rate has fallen since the war, a result probably not unconnected with the anti-tuberculosis schemes of local authorities. Further, despite a keener search for cases, the number of new sources of infection, in Lancashire at any rate, is definitely declining. For the future we want greater assistance from the general medical practitioner, and he can only do this if as a student he is taught more thoroughly all about tuberculosis. The student must be brought into touch with the clinical material which has now gone to the dispensaries and sanatoria of the public authorities. Older children in the elementary and secondary schools should have more thorough instruction in hygiene, a matter long urged by Sir George Newman. In the schemes of local authorities only those with a sufficient population can afford well-equipped dispensaries with X-ray apparatus, institutional accommodation suitable for all types of cases, and a tuberculosis physician who, owing to the very specialized nature of his work, must be a doctor of high professional standing with experience of all forms of tuberculosis, so that he can act adequately as consultant and adviser to the general practitioner. Far too many authorities in England and Scotland are too small to provide an adequate scheme. Research has shown conclusively that the children of tuberculous households are many times more liable to contract tuberculosis (mostly non-pulmonary) than children of healthy households. Still more adult beds for the isolation of open cases whose home conditions are unsatisfactory are needed. Thoracic surgery—minor and major—is too little applied, especially in the treatment of young adults aged fifteen to twenty-five. A special attack should now be made upon the adverse conditions of trades which have the highest incidence of tuberculosis—*e.g.*, publicans and barmen, tin and copper miners. And, lastly, a great deal of research is still required on nearly every aspect of tuberculosis, especially the kind of research now being undertaken by the National Association for the Prevention of Tuberculosis as to the causes for the high incidence of tuberculosis on Tyneside.

ORIGINAL ARTICLES.

PRACTICE AND PRINCIPLE IN THE TREATMENT OF TUBERCULOSIS.

BY ANDREW TRIMBLE,

M.B., D.P.H.,

Chief Tuberculosis Officer, Belfast.

FROM time immemorial the medical profession has been guided in the treatment of tuberculosis, as of all other forms of disease, by one or more of three considerations—tradition, experience, and the application of the scientific beliefs of the day. If there has been one other consideration, let it be mentioned merely as an *ignis fatuus*—the optimistic shot in the dark!

The Rôle of Tradition.

To tradition let us yield respectful allegiance; it has been the repository of the opinions and a record of the practice of the masters of medicine throughout the ages. On the other hand, undue respect for its authority has often clogged the wheels of progress, hindered free enquiry, and delayed the employment of newer methods of treatment; for courage is necessary before we can discard time-honoured customs and traditional opinions. Nor can we readily forget the scorn and contumely poured out on Harvey, Jenner, and Henry MacCormac, when these pioneers first gave expression to their revolutionary views on physiology and treatment. Even after the grosser errors of traditional medicine have been discarded, it is remarkable how tenaciously the shreds of old ideas cling. As Lowell says in his preface to one of the Biglow Papers: "One generation is apt to get all the wear it can out of the cast-off clothes of the last, and is always sure to use up every paling of the old fence that will hold a nail in building the new."

The Influence of Experience.

When we come to experience as a guide to treatment, we are on ground a little firmer than tradition, yet one must be on guard against erroneous deductions arising out of personal experience, for *post hoc* is not always *ergo propter hoc*. Our opinions are so often biassed by our own prejudices and by the outlook of the patient, especially of the tuberculous patient, that estimates of progress are often untrustworthy and misleading.

Guidance by Scientific Methods.

Of the three principles of treatment mentioned above, tradition and experience may be said to be static and brought into operation almost subconsciously. The third, the application of scientific methods, is the real dynamic, but requires judgment and caution in its use. The fact that new ideas and so-called scientific methods so soon become obsolescent need not trouble us; the method of trial and error is better than monotonous routine or helpless nihilism. The whole history of the etiology, diagnosis, and treatment of tuberculosis is a record of continuous and often small additions to the common stock of knowledge—a record of annulments, alterations, and readjustment of current thought.

A Glance Backward: Biographical Considerations.

Before turning to a consideration of modern principles and practice in the treatment of tuberculosis, it may be well to make a rapid survey of some methods of treatment formerly employed. From the earliest times the treatment of tuberculosis has been associated with the idea of rest—a procedure that probably suggested itself to the physician both by reason of the desirability of combating a febrile temperature, and in order to control hæmoptysis. But on account of the similarity of the symptoms of tuberculosis to ordinary bronchial catarrh, physicians zealously protected the patient from any extension of his illness by condemning him to live in a warm room from which every trace of fresh air was carefully excluded.

Galen (131-200 A.D.) apparently believed that once disease took possession of a patient nature did nothing to stop its progress, and, therefore, it was necessary to bring about a cure by artificial remedies. These remedies were many, varied, and weird. Indeed, the history of the treatment of tuberculosis up to the nineteenth century does not seem to have been based on any definite principles, and bears distinct evidence of the influence of ancient ideas, such as that disease entered the body as a morbid entity which could only be expelled by the exhibition of nauseous and often disgusting medicines. *Galen*,¹ however, conceived the idea that in consumption the lungs were the seat of ulcers, the cause of this ulceration being due to traumatism, the extension of inflammation, or the chilling of the lungs! The treatment of hæmoptysis as a result of the ulcer in the lung, and of hæmoptysis generally, he carried out on the same plan as if the ulcer were external. And as it was impossible to reach directly the pulmonary ulcer, he applied plasters to the outside of the chest, at the same time ordering the patient to gargle while he lay prone in bed, swallowing very slowly so as to allow the medicament to reach the ulcerated surface. With patients more acutely ill, a much more drastic

regimen was put into operation, including purging with aloes, scammony, colocynth, agaricus, bdellium, and gum arabic—not unlike the Pil. colocynth co. of our own Pharmacopœia. When conditions became more serious the treatment assumed a still more complex form. Sedatives, such as opium and hyoscyamus, were given to allay cough and nervousness. These drugs he reserved for patients seriously ill with violent cough, and then only in small doses. Astringents, such as tannic and gallic acids, were prescribed as methods of combating both hæmoptysis and excessive expectoration. In fact, during the seventeen hundred years which have elapsed since the time of Galen, the general treatment of tuberculosis has undergone little change. At times, indeed, active treatment was given up in despair in face of the twin spectres of heredity and what was thought to be a dispensation of Providence, against which it was useless for mortals to strive.

Laennec (1781-1826).—At first sight it might appear that *Laennec*² made no outstanding contribution to the treatment of tuberculosis, yet in reality, by his invention of the stethoscope, which made possible a much earlier and more accurate diagnosis, he made earlier treatment possible. Further, by his untiring researches into the pathology of tuberculosis—although he was not the first to notice the pulmonary tubercles—he showed that the characteristic of the disease was the tubercle, whether it was hard, caseous, or excavated. Thus, he laid the foundations of modern treatment, which seeks to stimulate the production of fibrous tissue at the seat of the lesion.

Bodington (1800-1882).—Twenty years later *Bodington*,³ deliberately flouting traditional opinion, and proceeding by the method of observation and experience, denounced the prevalent method of “shutting the patients up in a close room to exclude, as far as possible, the access of the atmospheric air, and thus forcing them to breathe over and over again the same foul air contaminated with the diseased effluvia of their own persons.” Together with open-air treatment, he combined a nourishing diet and the exhibition of medicines calculated to soothe the nervous excitement of the patient, endeavouring, as he said, “to bring to a healthy action the nervous influence from that morbid, irregular, or inefficient action which it exerts under the influence of disease,” and “in the proper use and application of these medicines is to be found the means of restoring disordered nervous power to a healthy standard.”

Henry MacCormac.—Another twenty years elapse, and *MacCormac*⁴ of Belfast preaches the same doctrine of the necessity of fresh air for the tuberculous patient, and is rewarded by the same scorn and contumely as *Bodington*. But *MacCormac* went further, supporting his heretical method of treatment by a reference to what *Laennec* had pointed out fifty years previously: that “the tubercle is the sign-

manual of consumption." He held that "the tubercle itself is no other than the unburnt carbonaceous hydrogenous waste not discharged by the proper respiratory outlets, and consequently accumulating in the blood," and that "the only necessity for treatment was the continual inhalation of pure unprebreathed air." Here is an example of how intelligent observation pointed out the royal road in treatment, but how theory, built on limited knowledge, fell into error.

Niemeyer,⁵ scorning the pathological work of Laennec, and especially his reference to tubercles as the essential pathological characteristic of consumption, regarded the disease as primarily caused by a catarrh, teaching that "the greatest danger to most phthisical patients was the development of tubercles!" The idea of the value of open air had, however, by this time become firmly rooted, and Niemeyer, while advising rest, good food, and quinine, declares himself on the side of those who advocated the value of open air in treatment.

Koch.—The discovery of the tubercle bacillus by Koch in 1882 revolutionized the whole idea of the cause of tuberculosis, and soon it was realized that the tubercle was nature's reaction to the tubercle bacillus—what could not be destroyed must be immured, so as to isolate both the bacillus and its products.

Modern Ideas on Tuberculosis.

Having reviewed a few of the ideas and methods of treatment of the past, let us now turn to our own position today, modestly bearing in mind the probability that we, too, shall be subjected to the criticism of future generations in the light of newer ideas, and a fuller knowledge of physiological, pathological, and biochemical facts.

The mainspring of modern treatment is to assist nature to induce the cells in the vicinity of the tubercle bacillus to undergo a metamorphosis into fibroid tissue, and to promote the production of immune bodies to neutralize the toxins of the bacillus. How best this can be accomplished is the problem of present-day workers.

Out of the maze of conflicting methods of treatment, three seem to have stood the test of time and experience: fresh air, nourishing food, and rest; but the greatest of these is rest! Whatever the stage of the disease and whatever the method of treatment, focal rest of the lesion—either partially or absolutely—will be found to be the very keystone of success. It is significant that not only has this been recognized in the non-pulmonary forms of tuberculosis, but that the modern applications of surgery to the treatment of pulmonary tuberculosis by such operations as thoracoplasty, phrenocectomy, artificial pneumothorax, etc., have all the same object in view—focal rest. We may even go so far as to say that the focal reactions of tuberculin, sanocrysin, etc., produce a similar effect by the pathological "splinting" exhibited in the focal reaction. Without being too sweeping in generalities, it

may be said that no healing is possible without focal reaction, producing either temporarily or permanently focal rest. The rationale of these reactions has been elucidated by the recent work of Sabin, Cunningham, Doan,⁶ and others at the Rockefeller Institute, working in collaboration with the Research Scheme of the American National Tuberculosis Association. These researches have shown, among other details, that the monocyte—a cell believed to originate in the reticulo-endothelial tissue of the spleen, liver, lymphatics, etc.—is the cell which reacts most delicately to the presence of the tubercle bacillus, which, although it engulfs, it does not destroy; indeed, the two seem to grow together in symbiotic union. This may not have any serious consequence if the monocyte developing into the epithelioid cell becomes the centre of a tubercle, but it is obvious that there is risk of an extension of the disease if the monocyte is left free to carry its guest to other parts of the organ, or of the body. Monocytes are now generally regarded as the forerunners of the epithelioid cells which, combining together, form the giant cell, the foundation-stone of the tubercle—the mass of fibroid cells which enmesh and imprison the tubercle bacillus. If the monocytes are successful in isolating the tubercle bacillus, and develop into epithelioid cells, the first stage of the healing process commences; lymphocytes appear, and tightly pack themselves around the inflammatory area. If, however, the healing process is abortive, dead cells accumulate, neutrophils appear in large numbers, and an abscess is formed.

Whether viewed microscopically or macroscopically, therefore, it is evident that the idea of rest in the treatment of tuberculosis is sound as a method leading to the isolation not only of the bacillus, but as a means of limiting the circulation of the bacillary antigens which give rise to allergic reactions—the symptoms of the disease.

Principles of Treatment.

I lay down, therefore, the following principles as essential to the safe and successful treatment of tuberculosis, whatever the method or medicament used, whether tuberculin, sanocrysin, pneumothorax, artificial light, etc.: (1) Physical rest in hygienic surroundings, especially if the disease is in an acute or early stage. (2) The remedial agent used must be capable of producing a focal, though not necessarily a marked, reaction. (3) If an active agent, such as tuberculin, sanocrysin, etc., is being used, no second or subsequent dose should be administered until all signs of reaction from the first or previous dose have passed away. (4) Proof of effective focal reaction and of its passing off should be demonstrated, not only by physical signs, but by some method of scientific precision such as those referred to later.

If the treatment employed fails, the failure may be due to one of the

following causes: (1) The medicament used may have had no effective power to produce a specific reaction. (2) The dose may have been too small to be effective. (3) The dose may have been too large or repeated at too frequent intervals. (4) The patient's tissue resources may have become exhausted.

Of scientific methods to determine whether a focal reaction however small has taken place, and when it has passed off, there are several, but passing over the opsonic index and the interferometric methods of examining the serum as too complicated to be carried out except in a laboratory, there are two which in my opinion might, with the necessary patience and a little experience, be performed by any general medical practitioner. The first is the sedimentation rate (S.R.) of the red blood corpuscles, which gives an index of cellular destruction through the presence of fibrinogen in the blood serum. (The greater the cellular destruction the more rapid will be the sedimentation rate of the red blood cells, and the less the cellular destruction the slower will be the sedimentation rate.)

Sedimentation Rate (S.R.) Technique.

The S.R. may be carried out either by the macroscopic or the microscopic method. For the former an intravenous withdrawal of blood is necessary; for the latter the finger puncture method is sufficient. I have found the puncture method quite satisfactory and less alarming to the patient when a series of observations has to be made. A pipette accurately graduated in 100 divisions and holding 0.1 c.c. of blood, but slightly longer than the gradations, and a neatly fitting rubber teat are necessary. (These pipettes and the necessary accessories can be obtained from Messrs. Hearson or Messrs. Hawkesley.) The technique is as follows:

Into a perfectly dry and clean pipette 0.02 c.c. of a 3.8 per cent. sodium citrate solution is drawn, followed by 0.08 c.c. of freshly-drawn blood received into a watch-glass (one-fifth citrate to four-fifths blood). The citrate and blood are mixed carefully in a small mixing tube, carefully avoiding bubbles, and finally drawn up into the pipette until one end of the column reaches the zero mark and the other end the 100 mark. The pipette is then sealed at the lower end with hot paraffin wax. It is then allowed to stand at room temperature, or better still in the incubator (98° F), and the top level of the red corpuscles read off as percentages of the whole column at hourly intervals for five or six hours. The two-hour reading may be taken as standard. Thus an index of cytolysis and the progress and condition of the patient during treatment will be provided. Certain physiological conditions, however, such as menstruation and pregnancy, have to be taken into consideration, as these have the effect of increasing the sedimentation rate.

Leucocyte Assessment.

Although the sedimentation reaction is simple and instructive, it is not complete, nor is it so exact as a critical assessment of the white blood cells. It is not intended here to enter into a discussion on the changes in the blood picture caused by tuberculosis, but merely to indicate the lines upon which a controlled and supervised course of treatment might proceed. Tuberculin indeed might be rehabilitated as a remedial agent in tuberculosis, if it were administered along strictly scientific lines, and the result of each injection duly observed and assessed before the next injection was administered, more especially if the new method of eliminating the harmful polysaccharide fraction of the bacillus, in elaborating a pure tuberculin, were adopted, as suggested by the American National Tuberculosis Association research workers.⁷

To Arneth⁸ is due the credit of being the first to analyze (apart from the mere enumeration of the blood cells) the polymorphonuclear neutrophiles into their various classes according to the number of nuclear segments in each cell; thus, cells with one nucleus, or two nuclear segments, he regarded as younger than those with three, four, or five segments. This classification was good so far as it went, but it only took into consideration one type of blood cell; but within the last few years a great deal of new work has been done on the significance and proportion of other forms of leucocytes, such as lymphocytes and monocytes, and the ratio of these to each other in the blood picture, by Sabin, Cunningham, and Doan in America;⁶ Schilling⁹ in Germany, *et altera*. From the studies of these workers and from personal observation in a long series of blood examinations I am convinced that, as already mentioned, the monocyte (Ehrlich's transitional cell) is the cell which reacts most delicately to the presence of the toxins of the tubercle bacillus, and, therefore, a consideration of the characteristics of all the white cells, and especially the monocytes, is required before a reliable opinion can be formed regarding the progress of a tuberculous patient.

The technique of the nuclear and differential leucocyte count is certainly much more tedious and time-consuming than the S.R. test, but it affords information not to be gained by that method alone; one is complementary to the other, and the necessary blood smear can be made at the same time as the S.R. test is being put up.

Staining by Pappenheim's panoptic method is much better than Leishman's or Jenner's stain, as it shows up azurophile granules in the large lymphocyte, thereby assisting, amongst other signs, to differentiate it from the monocyte.

A Standard Method of Procedure.

In a typical case about to undergo active treatment, let us say by tuberculin, the first step should be to make a blood sedimentation

test and a leucocyte assessment by blood film, in order to discover the patient's normal pre-treatment standard. Then the first dose may be administered, care being taken to commence with a minimal dose. If the patient is tuberculous, and the dose effective, within twenty-four hours the number of segments in 100 neutrophils (nuclear count) will show a reduction in number, indicating the calling out of young neutrophils, and a diminution in the older forms, together with an increase of monocytes and a corresponding decrease of lymphocytes, bringing about a reduction in the lymphocyte-monocyte ratio. In the course of a few days to a week, or more, if the treatment promises to be successful, the blood condition will have improved as indicated by a rise in the older forms of cells, containing three, four, or five nuclear segments, and a corresponding decrease in the younger forms. At the same time the lymphocyte-monocyte ratio should have risen. No second or subsequent (and certainly no increased) dose should be administered until the blood conditions have improved at least to the level of the patient's pre-treatment standard. At the same time, the sedimentation test will indicate the rate of cytolysis, or cellular stabilization, as compared with the first test. On the contrary, when the patient is not responding to treatment, or where the dose of medicament is excessive, the S.R. either continues to increase, or remains above the patient's pre-treatment level. Without making any claim as to the value of blood examination in itself as an aid to diagnosis, I have found that the methods outlined are of enormous assistance in arriving at a judgment as to prognosis, and as a scientific guide in treatment.

It has not been possible within the limits of this paper to give more than an outline of the subject treated, but it is hoped that enough has been said to emphasize the idea that treatment to be successful must be accompanied by continuous supervision of the patient, and meticulous control of the method employed.

BIBLIOGRAPHY.

1. "Galen's Treatment : A New Translation by Joseph Walsh." *American Review of Tuberculosis*. 1931.
2. LAENNEC. "De l'Auscultation Médiante." Translation of Selected Passages by Hale White. London : Bale, Sons and Danielsson. 1923.
3. BODINGTON. "Selected Essays and Monographs." Vol. 173. London : New Sydenham Society. 1901.
4. McCORMAC. "Consumption : Its Prevention and Possible Cure." By Henry MacCormac, M.D. London : Longmans, Green. 1865.
5. NIEMEYER. "Clinical Lectures on Pulmonary Consumption." Niemeyer. London : New Sydenham Society. 1870.
6. SABIN, CUNNINGHAM, AND DOAN. *Journal of Experimental Medicine*. December, 1930.
7. WHITE, D. C. "A National Research Program (U.S.A.) in Tuberculosis." National Tuberculosis Association, New York. 1929.
8. ARNETH. "Die Neutrophilen Weissen Blutkörperchen bei Infektionskrankheiten." Jena : A. Fischer. 1904.
9. SCHILLING, V. "The Blood Picture." Translated by Gradwohl. London : Kimpton. 1929.

OSLER AND TUBERCULOSIS.¹

By WILLIAM STOBIE,

O.B.E., M.D. (EDIN.), M.R.C.P. (LOND.),

Honorary Physician to the Osler Pavilion for Tuberculosis, Radcliffe Infirmary
and County Hospital, Oxford, and Mayor of Oxford.

IT is no small honour to be privileged to deliver the fourth Oslerian oration. Some may remember Osler's remarks at the farewell dinner given in his honour by the medical profession of the United States and Canada in New York on May 2, 1905. He then recalled that when he received a telegram at Leipzig inviting him to become a candidate for the Chair of Clinical Medicine in the University of Pennsylvania, he regarded the episode as the effort of a practical joker amongst his many friends. Conscious of my unworthiness to follow in the footsteps of men of the calibre of Sir Wilmot Herringham, Sir Archibald Garrod, and Dr. Harvey Cushing, I, too, was tempted, when your Secretary invited me over the telephone to give this oration, to regard the invitation as a hoax. With innate caution I took the question, as they say on the other side of the Tweed, to avizandum, and finding all in order, I summoned up my courage and adopted the suggestion of your Secretary to talk to you on "Osler and Tuberculosis." Indeed, it is with no small pride and pleasure that I accepted the invitation, and in preparing the oration I have lived again those unforgettable ten years of close association with Osler between 1909 and 1919, regaining something of that old intimacy and many glimpses of that stimulating presence and sympathetic interest.

I have refrained from extensive quotation from Osler's own writings or from the works of others concerning him, preferring to give my personal recollections of him and his work in Oxford. Nevertheless I have had recourse from time to time to Dr. Harvey Cushing's "Life," Dr. Maude Abbott's Memorial Volume, the "Bibliotheca Osleriana," and Osler's many addresses in "Æquanimitas" and elsewhere. More particularly I am indebted to Dr. Joseph H. Pratt's paper on "Osler and Tuberculosis" in the Memorial Volume.

Osler's interest in tuberculosis was lifelong. As early as 1870 we are told that he first evinced an interest in the frequency of signs of pulmonary tuberculosis at the apices, and it was only his fatal illness forty-nine years later which prevented him from addressing the National Association for the Prevention of Tuberculosis in this country. He

¹ An Abstract of the Fourth Oslerian Oration delivered before the Osler Club of London, July 12, 1931.

lived in times of epoch-making discoveries and of fierce discussions. One of the first to stain the tubercle bacilli after the climax of Koch's masterly researches in 1881, he saw the introduction of tuberculin and the disasters associated with it in 1890. In 1894 we find him reading a paper at the College of Physicians in Philadelphia on "The Registration of Tuberculosis," while in 1900 he was instrumental in founding the Laennec Society for the special study of tuberculosis at the Johns Hopkins Hospital.

It is not surprising that Osler, after his arrival in Oxford as Regius Professor of Medicine in the University, lost no time in initiating and encouraging anti-tuberculosis work in the United Kingdom. Once familiarized with his new duties, Osler, not unnaturally, turned his attention to the problem of tuberculosis as it existed at his very door. The population of Oxford and the surrounding district was not very large, but the incidence of tuberculosis was comparatively high; it was estimated that Oxford and Oxfordshire contained about 3,000 cases, and of the total deaths in city and county more than one-ninth were attributed to tuberculosis. Only in Edinburgh and in certain parts of London was concerted effort being directed to this scourge. The dispensary system, inaugurated in Edinburgh by Sir Robert Philip in 1889, had been on trial in Paddington and other metropolitan boroughs since about 1907. While there was little activity in regard to anti-tuberculosis work in the towns, there was none in the country districts.

Oxford was the pioneer of the dispensary system in rural areas, an enterprise due in no small measure to the enthusiasm of Miss Mabel Price and the energetic backing of the Regius Professor of Medicine. Following an Exhibition in the Examination Schools in November, 1909, a local branch of the National Association for the Prevention of Tuberculosis was formed, with Osler as first President and Miss Mabel Price the first Honorary Secretary, a position which she holds to this day. The writer, then House Physician at the Radcliffe Infirmary, was appointed Medical Officer, and was sent to Edinburgh to study anti-tuberculosis measures established in the Metropolis of the North. The objects of the Association were set out thus: (a) To establish for the County of Oxford a centre for the study, treatment, and control of tuberculosis in all its forms; (b) to spread a knowledge of the laws of health and to encourage and carry out all measures tending to prevent the spread of infection; (c) to secure the co-operation of Public Authorities, Councils and Boards of Guardians, and all private and charitable agencies in matters relating to consumption and its prevention.

The first dispensary was opened at the Radcliffe Infirmary and, around this central nucleus, there rapidly appeared eight branch dispensaries in different parts of the county (under the control of the

Oxfordshire Association for Tuberculosis). Local committees were established at various centres throughout the county. Two nurses were sent out from Oxford to attend every dispensary session.

Although the Association was intended primarily for Oxford and Oxfordshire cases, there was no definite limitation to its activities, and soon it found itself dealing with cases from Berkshire, Buckinghamshire, Gloucestershire, Northamptonshire, and Worcestershire. The good news had spread. At this early stage an important duty of the Medical Officer was to examine contacts of open cases of lung tuberculosis. The work grew apace, and the radius of the Medical Officer's journeyings increased in some directions to thirty miles. "We have a young Scot as physician who scours the country on his motor-bike," wrote Osler to Mr. Henry Phipps in January, 1911. Two years later a motor had supplanted the motor-bike, although motoring was by no means as uneventful or as rapid as it is now. Twice a week the long day's outing visiting rural dispensaries was followed by a tuberculin clinic in Oxford.

Meanwhile Osler himself was not inactive. He went all over the county raising funds for the work, and in a short time had collected sufficient money (including £500 from Mr. Phipps of New York) for a small institution at Shotover. But matters did not run too smoothly in Oxford, and as a result of local intrigue his institution never materialized. Indeed, there was considerable opposition to some of Osler's projects in Oxford, and Osler was apt to express himself concerning the obstructionists with considerable force and pungency. He certainly could be very "direct." Notwithstanding criticism and opposition, the dispensaries flourished. Owing to the absence of any institutional accommodation, except that of the Radcliffe Infirmary, many patients were treated in shelters in the gardens of their homes. Osler frequently attended at a dispensary and examined the patients, much to the pleasure of the local doctors.

In 1910 Osler wrote an address for the Oxfordshire Association for the Prevention of Tuberculosis, entitled "What the Public can do in the Fight against Tuberculosis." In this pamphlet he referred to the elimination of typhus and the rapid diminution in the incidence of typhoid. "But," he wrote, "a great scourge remains—the White Plague, as Oliver Wendell Holmes calls it—a disease which kills, it is estimated, at least a million annually, the terrible malady tuberculosis." He referred to the existing knowledge of tuberculosis. Among the "eight things" known was the progress of the germ on entering the body. There followed an analogy of the parable of the sower, hackneyed as it may seem nowadays, but at that time most appropriate. "Give to any professor of pathology a group of these germs and he will pick out that of tuberculosis, as a farmer will sort

oats from wheat" is another extract from the paper, a typical example of Osler's vivid method of appeal to the public.

Osler was particularly keen on immediate percussion, particularly four-fingered percussion of the bases. Immediate auscultation he practised from time to time, and he had a favourite method of eliciting tactile fremitus by applying the ulnar border of the hand to the posterior aspect of the chest to determine, for example, the level of a pleural effusion. As a consultant in tuberculosis and general medicine, he was in considerable demand. His methods were unique and accounted in some measure for the very happy reception accorded him by his patients, especially young women and children.

Osler was always interested in what was then usually designated acute pneumonic phthisis. I have a clear recollection of such a case over twenty years ago. I was fortunate enough to secure a post-mortem examination and left the patient's house with the valuable specimen, duly wrapped in paper and secreted in an old midwifery bag. Post-haste I made for 13, Norham Gardens and handed the treasure to the Regius Professor. Off we sped with the specimen to the bathroom, but, alas, Lady Osler was in the bath!

It was during 1911 that there came to Oxford murmurings of a new form of medical service. London sent important people to see us. The Astor Report was published, and the recommendations embodied therein for a dispensary system in rural areas followed the lines of our existing activities in Oxford and district. Until 1916 the dispensaries in Oxfordshire were maintained by the Oxfordshire Association for the Prevention of Tuberculosis, who carried out the work for that authority. At that date the dispensaries were taken over and staffed by the County Council.

Osler's views on the methods necessary for the eradication of tuberculosis might be summarized as follows: Early notification; dispensaries attached to hospitals; close co-operation between tuberculosis officers and private practitioners; and homes for advanced cases.

I view with considerable regret the fact that, twenty years later, we are very far from achieving those ideals in most parts of the country. It is true to say that the death-rate from tuberculosis is slowly but steadily falling, but the rate of decline is in no way commensurate with the expenditure of public money. Let us examine the figures. In 1913-14 the local authorities in England spent £428,000 on tuberculosis work. The death-rate at the time was 1,349 per million. The expenditure in 1927-28 was £3,127,160, while the death-rate was 952 per million. To provide justification for this enormous increase of expenditure to the country, the death-rate should have fallen at the end of ten years to approximately 200 per million. It is, of course, the last stronghold that demands the greatest expenditure, but

even allowing for this, he would be indeed a bold man who would say that the community is obtaining full value for the vast sums now being spent on the tuberculosis services.

What are the reasons for this poor return on the public money? In the first place, the responsibility lies in part with the National Health Insurance Act in its present form. It cannot be denied that tuberculosis in its early stages is escaping recognition at the present time. It is devoutly to be hoped that the medical profession will accept the proposal of a specialist and consultant service, making new facilities available to the existing group of insured persons.

Secondly, the widespread practice of combining the post of Tuberculosis Officer with that of School Medical Officer, Deputy Medical Officer of Health, etc., is to be deplored. How can men holding such omnibus appointments keep abreast of modern literature and new methods of diagnosis and treatment? Tuberculosis officers must be given a better status, and be attached to the local general hospital, thereby obtaining the advantage of consultation of their professional colleagues and the pathological and radiological facilities of the hospital. This was a very strong point of Osler.

There should be available to guide the tuberculosis officers a number of consultants in various areas of the country—general physicians and surgeons of sound reputation attached to Teaching Hospitals—and fortunately, such conditions exist in some of your London hospitals.

I hold that we should scrap 50 per cent. of existing sanatoria. One half of the remainder should be devoted to housing patients for whom collapse therapy is the appropriate treatment; they should be discharged within three months, to attend, if necessary, for further treatment at the dispensary attached to the general hospital. To the remaining half could be sent those patients whose condition does not justify active treatment, and so, in that sense, advanced cases.

And now to return to the tuberculosis problem in Oxford and the county. The wish of our chief has been partially fulfilled. At Headington we have, as part of the Radcliffe Infirmary extension, a hospital of forty beds for cases of tuberculosis. This daughter hospital of the Radcliffe Infirmary, the Osler Pavilion, takes patients from the city and county of Oxford. Situated in beautiful grounds, with a glorious view of the Wytham Hills and the valley of the Thames, it is a worthy monument to your patron saint.

CRITICAL SURVEY.

THE MODERN CONCEPTION OF ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

By L. S. T. BURRELL,

M.D., F.R.C.P.,

Senior Physician of the Royal Free Hospital and Physician to the Brompton Hospital for Consumption and Diseases of the Chest.

Of all the methods of treatment which have been advocated for pulmonary tuberculosis rest alone has stood the test of time. Various drugs, climatic treatment, light, inhalations have all had their vogue; but, after years of trial, rest of the diseased part remains the only treatment whose value is not in dispute.

Artificial pneumothorax was first practised many years ago, but it is only in the last fifteen years that it has come to be regarded as a serious form of treatment in this country. Since that time it has been used more and more, and has revolutionized the prognosis of pulmonary tuberculosis. The treatment is sound in theory as well as in practice, for it is nothing more than a method of resting the diseased lung, and is exactly comparable with the method of resting a diseased joint by splinting.

In every sanatorium patients themselves discuss artificial pneumothorax treatment; some ask for it, and are disappointed if they are pronounced unsuitable. In these institutions improvement, which is often dramatic, amongst those who are having the treatment creates a very strong impression on the other patients. A patient who has no knowledge of tuberculosis is, however, liable to be alarmed when pneumothorax is suggested, and his anxiety is often increased by his doctor. It is a remarkable fact that even nowadays a large number of practitioners who know very little about artificial pneumothorax, and many have never seen a single case, regard it as a drastic and experimental procedure.

The length of time required for the treatment prejudices many patients, for few realize how slowly a tuberculous lesion heals. It is a common belief that three months in a sanatorium will effect a cure. Dr. Rist¹ is in the habit of saying to patients who complain of the length of time required for pneumothorax treatment, "Yes, it takes longer than it does to die of tuberculosis."

Formerly the lung was kept completely collapsed by large refills of 1,200 c.cm. or even more. As a result of this the mediastinum was usually displaced, patients lost weight at first, and were very short of breath. It was also common for a febrile reaction to follow each refill. At the present time it is more usual to give smaller refills and to keep the lung only partially collapsed. By this means reactions are avoided, the mediastinum remains in the correct position, and the patient has no discomfort whatever. The treatment requires more careful control, however, because it is important not to allow the lung to expand sufficiently to touch the chest wall, where it might become adherent. When it was found that good results followed partial collapse of lung, the possibility of making bilateral collapse was suggested, and it is now possible to induce a partial pneumothorax of both lungs at the same time. Drs. Bernard and Bandry² described the results of nine cases treated by bilateral pneumothorax, and in one the patient had a partial collapse of both lungs for twenty months with good ultimate results.

A pneumothorax may be induced simultaneously on both sides or, alternatively, by not collapsing the second side until the first has been allowed to re-expand. In cases where the disease appeared to be unilateral and pneumothorax has been maintained for a year or more with success, it is usually better to allow re-expansion of the treated lung before collapsing the other if the disease begins to spread there. If, however, there is active disease on both sides when the patient is first seen, a fair collapse may be started on the worse side and a smaller degree of collapse on the other a day or two later, a partial collapse of both lungs being kept up at the same time. In cases of bilateral artificial pneumothorax Dr. Corti³ prefers simultaneous to alternative collapse, and has found early and acute cases most suitable.

In my experience bilateral pneumothorax is disappointing. There can be no doubt that in many cases it prolongs life, but most of the patients are great invalids, and life at the best is prolonged for only a comparatively short time; whereas in unilateral cases one sees many patients carrying on an arduous business before the treatment is completed, and remaining well and at work for many years afterwards. Perhaps it is the outstanding success of so many unilateral cases which causes bilateral ones to appear unsuccessful in comparison. In most clinics and sanatoria one can find one or two patients who have had bilateral pneumothorax with remarkable success, and it certainly offers the possibility of cure to a few patients who otherwise would be without hope.

Cases with a selective collapse where very small refills are given and only that part of the lung which appears diseased is collapsed do not do so well as those where the lung is completely or almost completely collapsed. In cases of selective collapse where a good recovery

has followed, I have often felt that the patient would probably have done well without the treatment at all. Adherent pleura is apt to form and by spreading to obliterate the pneumothorax cavity. This may lead to renewed activity of the disease and necessitate thoracoplasty, which would not have been required if the lung had been kept fully collapsed. I can see no advantage but several dangers in purposely allowing all but a small selected area of lung to be fully expanded. It is not necessary to compress the lung by very large refills, and a positive intrapleural pressure is hardly ever required; but I have always obtained the best results when the lung has been kept at least two-thirds collapsed. When there is active and spreading disease and the patient is getting worse, selective collapse in my experience is not sufficient to check the disease, and one has to proceed to further collapse before improvement begins.

In spite of the discomfort and disadvantages to the patient of the large refills of former times the results were undoubtedly good, and I have still many patients alive and at work who twelve years ago had active and acute disease treated by frequent refills of 1,500 or 2,000 c.cm. Although I do not advocate such large refills for routine treatment, I sometimes give them with success to patients who are not responding to small ones.

Originally it was thought that pneumothorax was suitable only in cases of unilateral disease and that an active lesion on the opposite side was a contraindication. Almost every complication was taken as a contraindication. At the present time it is recognized that most complications improve after the diseased lung is collapsed. For example, tuberculous laryngitis, far from being a contraindication, is now regarded as an actual indication for inducing a pneumothorax.

Dr. Morin and Bousse⁴ describe the effect of pneumothorax on the untreated lung. It is certainly true that in many cases the untreated lung improves; whether this is due to flushing with blood, to lessening of toxæmia by collapse of the diseased lung or to other causes, is uncertain. The fact that the untreated lung often improves is one reason for trying a unilateral pneumothorax first and not bilateral collapse, which should be considered only if the disease spreads in the untreated lung or fails to improve when a pneumothorax has been kept up for a few weeks.

Nowadays it is common practice to collapse one lung and give the patient sanocrysin to control the spread in the other, and I think this is good practice and better in many cases than simultaneous collapse on two sides.

The presence of adhesions interferes with pneumothorax treatment in a great many cases, and consequently methods have been sought to divide the adhesions. If the adhesion is a mere cord which does not

contain lung tissue it can be divided with a cautery, but when an area of adherent pleura exists and the lung-tissue is close up against the chest-wall it is dangerous to try and cauterize the adhesion, although recently it has been found possible in some cases to cauterize the parietal pleura around the adherent area and thus free the lung. For recent work on this subject the reader is referred to articles by Chandler⁵ and Maurer.⁶ By these means several cases which formerly could not have been treated by pneumothorax owing to adhesions can now have a satisfactory collapse and get full benefit from the treatment. When there is adherent pleura which steadily spreads so that the pneumothorax cavity is gradually obliterated, frequent refills with high intrapleural pressure do not delay the process of obliteration. It is found that a high pressure is quickly lowered so that a few hours afterwards it is a little if at all above atmospheric.

Oleoathorax,⁷ however, does help to keep the lung collapsed and check the spread of adherent pleura. The solution generally used is a 5 per cent. solution of gomenol in olive oil or paraffin, but it sometimes produces a reaction and may even cause a rise of temperature lasting several weeks, so that other substances have been advised instead of gomenol. Dr. Hunter⁸ advocates gelatinothorax, using a 5 per cent. sheet gelatine, which remains liquid at 30° C., and to this is added a $\frac{1}{2000}$ solution of acriflavine. This preparation is found to be lethal to pyogenic organisms and to tubercle bacilli, and does not produce the reactions which are not uncommon with gomenol. Further reports on this subject have recently appeared⁹ by Dr. Crockett. Where possible pneumothorax is preferable to gelatinothorax or oleoathorax.

It sometimes happens that the mediastinum is unduly mobile, so that it becomes displaced and interferes with the action of the untreated lung even when only small refills are given. In such a case phrenic avulsion will sometimes allow the pneumothorax treatment to be maintained. If a lung has been collapsed for over two years some physicians advise phrenic avulsion as a routine when refills are stopped and the treatment terminated.

The treatment of tuberculous pyopneumothorax complicating artificial pneumothorax treatment has also been modified in recent years. Although the development of a clear effusion is a very frequent complication of pneumothorax, it does not affect the prognosis unless the liquid changes into tuberculous pus, when the outlook becomes very grave indeed, over half the patients dying within eighteen months.

For this reason I advocate washing out the pleural cavity with Dakin's solution and trying to make the lung re-expand as soon as the effusion becomes purulent. Dakin's solution helps to remove the lymph which forms around the pleura and eventually organizes and prevents re-expansion of the lung; thus a permanent space containing pus exists

in the pleural cavity if the condition is left untreated. The pleural cavity should be washed out once a week or even more frequently and, after aspirating as much pus as possible, replaced with a small quantity of oxygen, but leaving the intrapleural pressure negative. It sometimes takes many weeks or even months before the lung expands, but in the majority of cases re-expansion does eventually take place. Of course this means terminating artificial pneumothorax treatment, but a satisfactory fibrosis is often left. In some cases, however, thoracoplasty is necessary, but even this is a lesser danger for the patient than an untreated tuberculous pyopneumothorax.

It is very rare for the pleural cavity to become affected by other organisms in cases of artificial pneumothorax; when this does occur it is almost always due to ruptured lung, and the outlook is very grave indeed.

The duration of treatment¹⁰ depends on the condition of the patient, the state of the lung, and the presence and extent of adhesions. In some cases adhesions prevent a satisfactory collapse, and as soon as this is proved I think pneumothorax should be discontinued at once and some other policy adopted. Some physicians hold the opinion that however much adherent pleura may exist, provided the patient is progressing well refills should be repeated to keep up the small area of collapse even if it is a mere pocket. I do not agree with this policy, and think that the benefit, which I agree does sometimes follow, is psychological. In two cases a small pleural cavity was being kept open by refills given every three weeks, and the patients began to lose ground when they were stopped. X-ray examination showed that seven-eighths of the lung was expanded, and in my opinion the small pocket of collapse could have no value. In view of the faith which these patients had in the treatment, I thought it best to insert a pneumothorax needle through the skin and pretend to keep up the refills. In both cases the patients were well whilst this was done, and one continued to remain well after the punctures were stopped, but the other complained of pain or discomfort and of feeling unwell in himself. It is my practice nowadays to get the patient back to work and restore his confidence in himself before stopping the refills in cases where patients are dreading a relapse as soon as the pneumothorax treatment is stopped. If possible I give them a definite date when I propose to stop the refills, as I have found that if the pneumothorax cavity gradually becomes obliterated by extension of adherent pleura patients are often anxious and cannot be made to understand that this is often the most satisfactory method of ending the treatment. If, however, the refills are stopped at a definite date, and they feel the treatment could be continued if necessary, they have not the same anxiety. In a straightforward case it is usual to keep the lung collapsed for three years.

One of the most important indications for artificial pneumothorax is hæmoptysis. In some cases, however, it has been noticed that hæmorrhage increases after a pneumothorax; this is probably due to contraction of the adhesions.¹¹ If, however, a good collapse of the bleeding lung is obtained, hæmoptysis almost invariably ceases.

Dr. J. Gwerder-Pedoja¹² discusses the treatment of hæmoptysis by artificial pneumothorax, and he has pointed out that since hæmoptysis coming from one lung sometimes improves when the other is collapsed, this may be a possible means of treatment. In my experience, however, I have not found that hæmorrhage on one side is affected by collapsing the other. I have frequently seen cases where artificial pneumothorax had to be discontinued because of repeated hæmoptyses coming from the other lung.

Conclusions.

1. Artificial pneumothorax has become more and more established as a successful method of treatment of pulmonary tuberculosis.

It is recognized that its value depends upon the rest it gives to the lung.

2. In recent years bilateral collapse has been practised; and although in certain cases this has given good results, it has not proved so satisfactory as complete, or almost complete, collapse in cases of unilateral disease.

3. It is now the custom to produce only a partial collapse, and in many cases successful results can be obtained by this means, which spares the patient the many discomforts associated with the old-fashioned method of complete collapse. In some cases, however, improvement does not follow partial collapse, but as soon as larger refills are given and full collapse is obtained there is immediate improvement.

4. Complications of artificial pneumothorax have been reduced and their treatment modified as experience of artificial pneumothorax treatment has increased. Phrenic avulsion and oleothorax are of value in certain cases in combination with artificial pneumothorax.

5. The duration of treatment depends upon the condition of the patient, and in a straightforward case is about three years.

Patients, however, are able to work and even carry on at an arduous occupation whilst having their refills, and one of the indications for artificial pneumothorax treatment is the inability of the patient to give sufficient time to sanatorium or other treatment which will keep him away from his work.

REFERENCES.

1. RIST, E. Preface to "La Cessation du Pneumothorax artificiel: Ses Indications. L'Avenir des Malades" By Paul Vêran. Paris: G. Doin et Cie., 1932.
2. BERNARD, A., and BANDRY, F. Résultats de 9 cas de pneumothorax simultané. *Gaz. des Hôp.*, 1928, 101, pp. 645, 677.

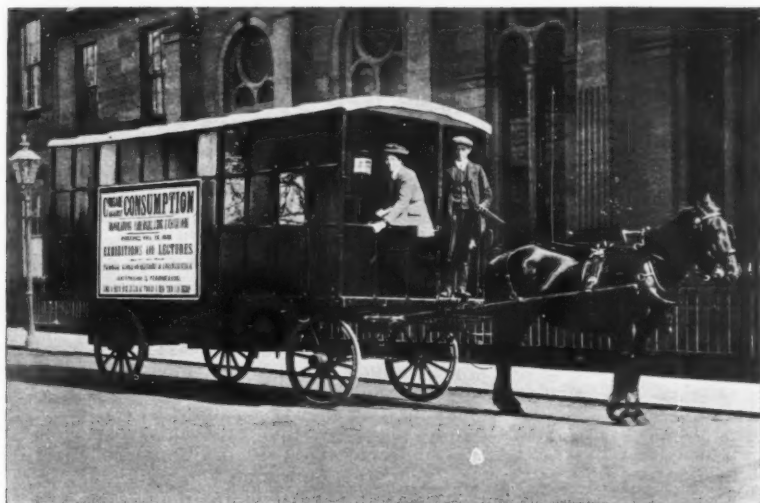
34 THE BRITISH JOURNAL OF TUBERCULOSIS

3. CURTI, A. "Collasso, elettivo e pneumotorace bilaterale simultaneo." *Tuberculosis*, 1930, xxii., p. 109.
4. MORIN, J., and BOUESSE, F. "Effet bilatéral du Pneumothorax thérapeutique unilatéral." *Rev. de la Tub.*, 1929, x., p. 184.
5. CHANDLER, F. G. *Lancet*, 1930, I, p. 232; *ibid.*, 1930, II, p. 74.
6. MAURER, G. *Lancet*, 1930, II, p. 72.
7. GILBERT, M. "L'Oleothorax." *Tubercle*, 1930, xi., p. 385.
8. HUNTER, R.A. "Gelatinothorax." *Tubercle*, 1931, xii., p. 204.
9. CROCKET, J. "Gelatinothorax in the Treatment of Infective Condition of the Pleural Cavity." *Tubercle*, 1931, xiii., p. 97.
10. VÉRAN, P. "La Cessation du Pneumothorax artificiel. Ses Indications. L'Avenir des Malades." Paris: G. Doin et Cie., 1932.
11. DUMAREST, F., and BRETTE, P. "La Pratique du Pneumothorax." Paris: Masson et Cie., Third Edition, 1929.
12. GWERDER-PEDOJA, J. *Am. Rev. Tub.*, xxii., No. 6, December, 1930.

ASSOCIATIONS AND INSTITUTIONS.

THE NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

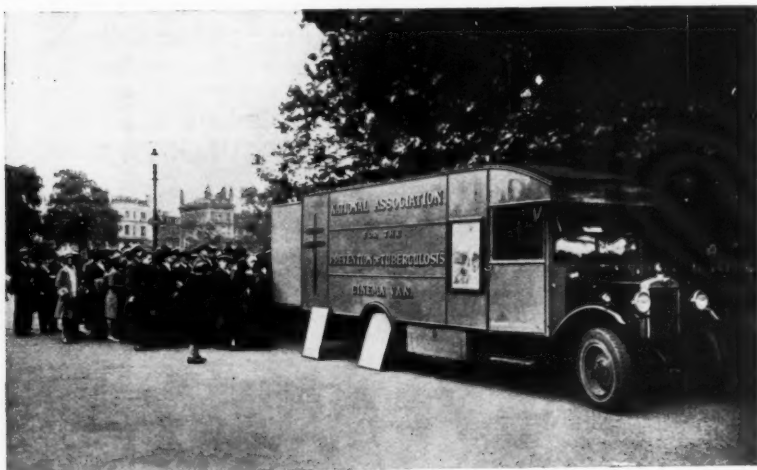
THE National Association for the Prevention of Tuberculosis is one of the oldest voluntary associations in the country, having been founded



TUBERCULOSIS CARAVAN USED BEFORE THE WAR IN COUNTRY DISTRICTS.

in the year 1898 at a meeting held at Marlborough House on the invitation of H.R.H. the Prince of Wales, afterwards H.M. King Edward VII., who became the first President. Its chief work has been educational, and millions of simple leaflets have found their way into the homes of the people. As early as 1908 the Association formulated a Tuberculosis Exhibition for the large cities, and a little later in the same year Tuberculosis Travelling Caravans were put on the road to tour in the country districts. The accompanying illustrations, taken from the last Annual Report, give a striking contrast of locomotion then and now. Practically the whole of Great Britain, from the Shetland Islands in the far north to Land's End, has been covered by the caravan tours. Innumerable Health Week Exhibitions in the large

industrial centres have included the Tuberculosis Stall of pictures and models, and many hundreds of simple popular lectures have been given by the Association's Medical Commissioners to adults and school-children. In addition to the popular education of the masses, the



TUBERCULOSIS PROPAGANDA TODAY: THE MOTOR FITTED FOR CINEMA DEMONSTRATIONS.

Association holds Annual Conferences which are attended by delegates from public health authorities all over the country and elsewhere. One was recently held in Margate, an impression of which appeared in the October, 1931, number of the BRITISH JOURNAL OF TUBERCULOSIS.

The National Association for the Prevention of Tuberculosis have issued the "Transactions of the Seventeenth Annual Congress," held at Margate, June 25-27, 1931, as a large, well-printed 165-page volume. The addresses and other communications deal with various aspects of the tuberculosis problem in childhood. (London: Adlard and Son, Ltd., 21, Hart Street, W.C. Price 5s.)

The National Association for the Prevention of Tuberculosis, the headquarters of which are at Tavistock House North, Tavistock Square, W.C. 1, will hold its eighteenth annual conference in London, July 21-23, in the Great Hall of University College, Gordon Street, W.C. 1, by kind permission of the college authorities. The jubilee of the discovery of the tubercle bacillus by Robert Koch will be made a feature of the conference.

NOTICES OF BOOKS.

ARTIFICIAL PNEUMOTHORAX.

DR. PAUL VÉRAN has written a monograph on artificial pneumothorax, in which he presents a complete analysis of the end results of 226 cases.¹ The effect of various factors, such as age, sex, site of lesion, development of fluid and total duration of pneumothorax upon the ultimate result are carefully considered. In discussing the after-effects of artificial pneumothorax, the author describes the "effusion of substitution"—that is to say, the development of an effusion after the pneumothorax treatment is stopped and the lung re-expanded. Although the pleura becomes adherent in most cases, these effusions occasionally occur one or more years after the expansion of the lung, and they usually run a benign course. The percentage of cures in the series of cases enumerated was found to be practically the same whether or not a clear effusion formed during treatment, and these findings correspond with figures published by other authors. It is stated that some cases of artificial pneumothorax, which are kept up for a short period—six months to one year—and terminate by spread of pleural adhesions, do very well. In the ordinary fibro-caseous type, however, a minimum period of four years is advocated for the treatment and a maximum of six years. The author points out that there is a definite danger in keeping up a pneumothorax indefinitely; even the best cases become useless after a time, and there is always a possibility of the formation of a purulent effusion. Dr. E. Rist, in the sympathetic preface to Dr. Véran's work, remarks that artificial pneumothorax has completely transformed the modern treatment and prognosis of pulmonary tuberculosis. One can understand having to explain the treatment to a patient or his friends; but, as Dr. Rist points out, it is amazing that even now there are still to be found public bodies dealing with pulmonary tuberculosis and even some medical practitioners who are actively opposed to the treatment. Dr. Véran's book is a most useful addition to the already existing numerous publications on artificial pneumothorax, and it will be read with great interest by all those interested in the subject.

L. S. T. BURRELL, M.D., F.R.C.P

MANUALS FOR MEDICAL ADVISERS AND WORKS
OF REFERENCE.

The famous firm of French medical publishers, Masson et Cie., of Paris, recently issued a fine two-volume work dealing with radiological exploration of the respiratory system. A review of these remarkable

¹ "La Cessation du Pneumothorax Artificiel: Ses Indications: L'Avenir des Malades." By Paul Véran. Pp. 160. Paris: G. Doin et Cie. 1932. Price frs. 22.

atlases appeared in this JOURNAL for July, 1931 (p. 143). We now are able to congratulate the same firm on the appearance of a companion work, also in two volumes.¹ These and the preceding works form a grand atlas of radiography, which should be available in all lands where medicine claims to be a progressive science and art. This atlas of traumatic and non-traumatic lesions of bone will be of special value to practising surgeons. The first part is devoted to expositions of fractures, dislocations, etc.; while the second part is devoted to illustrations of osteites, osteo-arthritis, tumours, malformations, dystrophes, etc. There is a fine collection of admirable radiograms of tuberculous lesions involving the spine and various bones and joints. We particularly commend them to the consideration of tuberculosis officers and all others called to take X-ray photographs of cases of surgical tuberculosis or expected to interpret them. The method employed in this atlas of accompanying the radiogram with a descriptive schema is most instructive and admirable. All who have participated in the production of these notable volumes merit warm congratulations.

The monumental "Index of Treatment," edited by Dr. Robert Hutchison, and issued in attractive form by Messrs. John Wright and Sons, of Bristol, has just appeared in a revised and tenth edition.² Originally published in 1907, this great work has found favour with British medical practitioners in all parts of the world. It is an ideal guide to treatment for the busy practitioner, and no medical adviser's collection of reference books can be considered complete without it. No less than ninety contributors have co-operated with the editor in making this representative work one of which British medicine may well be proud. For the tenth edition many articles have been rewritten, and new subjects not hitherto included are suitably dealt with. There are sections on tuberculosis: Sir Robert Philip provides a detailed account of the management of cases of pulmonary tuberculosis; Sir Henry Gauvain deals with surgical tuberculosis; Mr. L. E. Barrington-Ward describes treatment for the various forms of tuberculous glands; Dr. Robert Hutchison treats of tuberculous peritonitis; Dr. Norman Patterson is responsible for the section on tuberculosis of the larynx; Dr. W. J. O'Donovan contributes the article on lupus; and there are numerous other sections of special interest to those responsible for the care of tuberculous patients. The index furnishes a complete and authoritative guide to the art of therapeutics. There is a table of contributors and their subjects and a very complete index. The volume is large and heavy and admirably produced, as might be expected from the house of Wright and Sons, and it is issued at a comparatively low price. All who have participated in the production

¹ "Atlas de Radiographie Osseuse: Squelette Pathologique.—(1) Lésions Traumatiques." By G. Haret and A. Dariaux, Electro-Radiologistes des Hôpitaux de Paris, and Jean Quénu, Professeur Agrégé à la Faculté de Médecine, Chirurgien des Hôpitaux de Paris. (2) "Lésions Non-Traumatiques." By Étienne Sorrel, Chirurgien de l'Hôpital Trousseau, Ancien Chirurgien-en-chef de l'Hôpital Maritime de Berk; and Mme. Y. Sorrel-Deferine, Ancien Interne des Hôpitaux. In two volumes. Pp. 344, with 897 figures, of which 519 are radiographs and 378 schemas. Paris: Masson et Cie., 120, Boulevard Saint-Germain. 1931. Price 310 francs.

² "An Index of Treatment." By various writers. Edited by Robert Hutchison, M.D., F.R.C.P., Physician to the London Hospital, and Physician to the Hospital for Sick Children, Great Ormond Street. Tenth edition, revised. Pp. xviii + 1027. Bristol: John Wright and Sons, Ltd., Stonebridge House, Colston Avenue. 1931. Price £2 2s.

of this exceptionally serviceable and indispensable reference work are to be warmly congratulated.

Dr. Charles Newman's practical work on "Medical Emergencies" is designed to serve as a companion volume to "Surgical Emergencies in Practice," prepared by Messrs. Romarus and Mitchiner, and published in Churchill's Empire Series of Medical Manuals.¹ Such a work as this, while of service to all who follow the healing art, will be of special value to general practitioners. Medical emergencies are usually matters for urgency, and call for the prompt application of accurate knowledge. Dr. Newman's compact, lucid, and dogmatic exposition, effectively arranged in nine chapters, may certainly count on a good reception, for it meets a real need. The subject-matter is arranged under such headings as—poisoning, coma, convulsions, circulatory failure, hæmorrhage, asphyxia, colic, and sudden insanity. It is well to remember that all these may arise suddenly in sanatorium practice, so we have no hesitation in commending Dr. Newman's helpful manual to medical superintendents of institutions dealing with tuberculous subjects. There is a serviceable section on hæmoptysis, a good account is given of instant and rapid tracheotomy, and the immediate management of patients with spontaneous pneumothorax is described. There is an excellent index.

Dr. F. W. Gardener's concise, lucid, and practical handbook on the most important of skin diseases is now in its third edition.² It is intended for the senior student and the general practitioner, and is based on the author's teaching and hospital experience in Edinburgh. Dr. Gardener has succeeded in presenting a serviceable exposition of the commoner skin diseases and their treatment in a form which will be appreciated by those for whom the book has been prepared. Special praise must be given to the fine series of coloured plates. A chapter is devoted to tuberculosis and the tuberculides, and this is illustrated with particularly fine plates in colour and several reproductions of photographs. Among therapeutic agents recommended are tuberculin, sodium morrhuate, sanocrysin, and Gerson's diet. Reference is also made to surgical measures and local chemical applications. Radio-therapeutic methods are also described. The work is admirably produced and in the effective form which we are now accustomed to expect from the house of Livingstone.

Dr. V. Coates and Mr. Leo Delicati have prepared studies from Bath concerning rheumatoid arthritis and its management, which will be of interest to all physicians dealing with arthritic sufferers.³ The work opens with a consideration of nomenclature and clinical features, and then comes a chapter on biochemical deviations. Excellent accounts are given of measures for systemic and local treatment.

¹ "Medical Emergencies." By Charles Newman, M.D., M.R.C.P., Junior Physician and Medical Tutor King's College Hospital. Pp. ix + 128. London: J. and A. Churchill, 40, Gloucester Place, Portman Square, W.1. 1931. Price 8s. 6d.

² "Handbook of Skin Diseases." By Frederick Gardener, M.D., B.Sc. (Public Health), F.R.C.S.E., F.R.S.E. Third Edition. Pp. xi + 283, with 13 plates in colour and 46 figures. Edinburgh: E. and S. Livingstone, 16 and 17, Teviot Place. 1931. Price 10s. 6d.

³ "Rheumatoid Arthritis and its Treatment: Studies from the Royal Mineral Water Hospital, Bath." By Vincent Coates, M.C., M.A., M.D., M.R.C.P., Physician Royal Mineral Water Hospital, Bath, etc., and Leo Delicati, L.M.S.S.A., Resident Medical Officer, Royal Mineral Hospital, Bath. Pp. xv + 114, with 12 illustrations. London: H. K. Lewis and Co. Ltd. 1931. Price 6s.

The latter part of the volume contains instructive records of a series of cases investigated and treated at Bath. The authors have rendered a valuable service in providing medical practitioners with a particularly interesting and helpful work on a peculiarly intractable crippling disease, concerning the pathology and prevention of which we still stand in need of more light. It should be noted that the work is dedicated to Le Ligue Internationale contre le Rheumatisme, the headquarters of which are at 489, Kaizergracht, Amsterdam, with Dr. J. Van Breemen as secretary and editor of the official journal, *Acta Rheumatologica*.

Dr. W. Robertson's new book on public health is based on his course of lectures delivered to students in the Edinburgh School of Medicine of the Royal Colleges.¹ It is a condensed introduction to hygiene in fifteen chapters, setting forth essential facts and fundamental principles in a form which meets the requirements of ordinary medical students and others desiring a concise introduction to preventive medicine. A short section deals with tuberculosis, in which it is said that 35 per cent. of those suffering from tuberculosis have been infected by the bovine bacillus. We suppose this expresses the view held in Scotland. In the section dealing with the control of food supplies reference is made to tuberculin tested milk. A brief note appears on open-air schools. The book is well printed on good paper and is suitably illustrated and strongly bound.

Professor E. W. Hope's many friends, colleagues, old students, and citizens of Liverpool will be glad to welcome his latest work, which affords a picture of the health development of the great city on the Mersey over which he has exercised such a beneficent influence during many years as Medical Officer of Health of both city and port.² It is a fine record of organization and administration in the interests of civic health. The work affords a striking record of the earlier conditions and growth of Liverpool and efforts towards social improvement and port administration. There are chapters on Schools and School Children, Water Supply, Supervision of Dwellings, Housing Operations, Municipal Cleanliness, Control of Food Supplies, Effects of Public Health Legislation, and other subjects of great interest to citizens of Liverpool and other large community centres, and of special value to medical officers of health and members of public health authorities. There is a valuable section on Tuberculosis. Dr. Hope shows that in 1895 approximately 75 per cent. of those who succumbed in Liverpool from tuberculosis were of the "bread-winning" age. In 1871 tuberculosis of the lungs destroyed 4.3 per 1,000 of the population. Voluntary notification of the disease was inaugurated in Liverpool in 1901. In 1910 the City Council appointed a specially trained medical officer to advise tuberculous patients how to minimize evils inherent in their home conditions and to avoid the risk of infecting others. A complete scheme for dealing with tuberculosis was approved in 1914. In Liverpool close co-operation developed between the tuberculosis

¹ "An Introduction to Hygiene." By W. Robertson, M.D., D.P.H., F.R.C.P.E., formerly Medical Officer of Health for Edinburgh and Leith; Lecturer in Public Health, School of Medicine, Royal Colleges, Edinburgh. Pp. viii+207, with 32 figures. London: E. and S. Livingstone, 16 and 17, Teviot Place, 1931. Price 6s.

² "Health at the Gateway: Problems and International Obligations of a Seaport City." By E. W. Hope, O.B.E., M.D., D.Sc., Professor of Public Health, University of Liverpool. Pp. xiv+213, with maps, charts, and illustrations. Cambridge: The University Press, 1931. Price 15s.

experts and the general practitioner, and Dr. Hope is now able to write: "The death-rate in the case of pulmonary tuberculosis is one-quarter what it was half a century ago, and the non-pulmonary form has diminished one-half." Liverpool has set an example which many other cities will do well to consider. Dr. Hope's fine volume is effectively illustrated and admirably printed.

Through the courtesy of the American National Tuberculosis Association, 370, Seventh Avenue, New York City, we have been favoured with a copy of the handsome and impressive volume which constitutes the memoir of the late Dr. Herman M. Biggs. Here is set forth the life-history of a great leader in public health exploration, organization, and administration in a form which merits the serious consideration of all students of personal and community hygiene.¹ The opening paragraph of the foreword provided by Dr. William H. Welch is of special interest to British workers: "On the façade of the fine new building of the London School of Hygiene and Tropical Medicine have been carved the names of twenty-one sanitarians, physicians, and men of science, who, by their contributions and work since the seventeenth century, have done the most to advance public health and the prevention of disease. Here in the company of Sydenham, Pringle, Jenner, Farr, Chadwick, Simon, Pettenkofer, Pasteur, Koch, Lister, Laveran, Reed, Gorgas, and other great names is inscribed the name of Biggs. The achievements of Herman Biggs in the domain of public health are of such a monumental character that we cannot doubt that the verdict of history will confirm the contemporaneous judgment which has selected his name to be thus perpetuated in stone with those of this illustrious group." Dr. Winslow has prepared a worthy biography of a fine personality, and has produced a record of the work of a notable American pioneer in public health service and particularly in regard to the prevention and control of infectious diseases. The last paragraph of the foreword is as follows: "To no subject did Biggs give a larger amount of time, thought, energy, and study, and to none did he make more important contributions than to the administrative control of tuberculosis. The principles and measure of control initiated and developed in this field were clearly recognized by Biggs as profoundly influencing the whole domain of public health. It is, therefore, especially appropriate that this biography should be published under the auspices of the National Tuberculosis Association." The volume contains an interesting and valuable section relating to the administrative control of Tuberculosis during the years 1893-1897 and the conduct of the Anti-Tuberculosis Movement, 1902-1908. There is also an important chapter on tuberculosis in France, and in the appendix is a Report on the Prevention of Pulmonary Tuberculosis to the Board of Health of New York City in 1889. We are particularly interested in the full-page photograph showing Dr. Biggs planting a tree at Alton with the assistance of Sir William Treloar on July 2, 1913, the only occasion on which we had the pleasure of meeting Dr. Biggs. The volume contains a serviceable list of Dr. Biggs's major contributions to scientific and popular literature.

¹ "The Life of Herman M. Biggs, M.D., D.Sc., LL.D., Physician and Statesman of the Public Health." By C.-E. A. Winslow, Dr. P.H., Professor of Public Health, Yale School of Medicine, etc. Pp. xv+432. With portrait frontispiece and other illustrations. Philadelphia, U.S.A.: Lea and Febiger. 1929.

Dr. Biggs's life record extended from 1859 to 1923. We commend this remarkable memoir to the serious consideration of all tuberculosis officers and others responsible in any way for the care of sufferers from tuberculosis and workers in the prevention and arrest of this world-wide scourge, as well as to all medical officers of health and others striving for the advancement of public health.

Dr. B. N. Ghosh's treatise on personal and public health is now in its seventh edition, and, thanks to the services of Dr. A. D. Stewart, fully revised and brought up-to-date.¹ The first issue was in 1912, since when remarkable advancement has been made in all matters connected with public health. The work is one which is to be specially commended to those who have to work in tropical countries and particularly in India. It opens with an account of the evolution of public health administration in England and *vis-à-vis* with that in India. Then follow a series of twenty-six chapters, including all essential hygienic subjects and special studies on Diet in India, Animal Foods, Beverages and Condiments, Disposal of the Dead, Climate and Meteorology, Medical Inspection of Schools, Village Sanitation, and Sanitation of Fairs and Religious Festivals. There is a serviceable section dealing with Tuberculosis, in which interesting data are presented. In the British Army in India the death-rate is 0·17 per 1,000, in the Indian Army 0·52 per 1,000, and in jails 3·21 per 1,000. As regards causal factors the following are enumerated: Bad housing, indiscriminate spitting, poverty, underfeeding, early marriage, and the purdah system. "While the incidence of tuberculosis is steadily diminishing in European countries, there seems to be little doubt that it is increasing in India." It is stated that "infection through the medium of milk is rather rare in India . . . rarity of tuberculosis in cattle is due to the low breeding and the open-air life." The well-selected illustrations add greatly to the value of Dr. Ghosh's excellent treatise.

Dr. E. Cowles Andrus has placed American and British students of medicine under a debt of gratitude; he has prepared an admirable English translation of the justly famous clinical handbook of Seifert and Müller.² This manual was prepared long years ago at the suggestion of the authors' chief, the late Professor C. Gerhardt, and through the years generations of students in Germany and elsewhere have called for no less than twenty-four editions. The work has been reproduced in seven other languages. This outstanding clinical guide will be of the greatest service to senior students, young practitioners, residents in hospitals, sanatoria, and other institutions, and all who desire a compact, reliable, up-to-date guide to the essentials of physical

¹ "A Treatise on Hygiene and Public Health: with Special Reference to the Tropical." By Birendra Nath Ghosh, F.R.F.P. and S. Glasg. Revised and largely rewritten with the advice and assistance of A. D. Stewart, M.B., F.R.S.E., D.P.H., D.T.M. and H., Lieut.-Colonel Indian Medical Service, Professor of Hygiene, Calcutta School of Tropical Medicine. Seventh edition. Pp. xxvi + 728, with 149 illustrations. Calcutta: Scientific Publishing Company. 1930. Price Rs. 6/8, or 10s. 6d.

² "Manual of Physical and Clinical Diagnosis." By Dr. Otto Seifert, late Professor of Medicine, Würzburg, and Dr. Friedrich Müller, Professor of Medicine, II. Medical Clinic, Munich. Authorized translation from the twenty-fourth German edition by E. Cowles Andrus, M.D., Associate in Medicine, Johns Hopkins University. Pp. xi + 541, with 140 illustrations and three coloured inserts. London: J. B. Lippincott Company, 16, John Street, Adelphi, W.C. 2. 1931. Price 25s.

diagnosis and particulars regarding diagnostic methods and clinical data. The volume has been prepared in its present form for medical students and residents in the Department of Medicine of Johns Hopkins University, Baltimore, and other American medical schools, but the manual only needs to be known by British medical students and practitioners to be appreciated.

Dr. A. F. Kraetzer's new work on the clinical investigation of lung cases, issued as one of the Oxford Medical Publications, deserves the special study of medical students and their clinical teachers.¹ Although primarily published for American readers, we particularly commend it to the consideration of tuberculosis officers and all who have to deal with the subjects of chest affections. As Dr. Miller points out in his sympathetic foreword, Dr. Kraetzer expounds a new method which is based on experience and is essentially practical: "Tuberculosis, viewed from this standpoint at the very beginning of the student's approach to it, should be a very much simpler problem than it has turned out to be in the past." The author describes the clinical technique and furnishes a lucid account of the necessary synthetic inductive discipline. Dr. Kraetzer's manual is one which every general practitioner should read with advantage, especially as nearly all cases of pulmonary tuberculosis come first of all under his care and the responsibility for early diagnosis and prompt treatment must inevitably be his.

Dr. A. Lowndes Yates has written a practical monograph on the management of cases of nasal catarrh which will not only be of interest to nose and throat specialists, but should assist general practitioners and furnish valuable help to tuberculosis officers and others dealing with subjects liable to derangement and disease of the mucous membrane of the nose.² The work is a member of the serviceable "Modern Treatment Series" edited by Dr. F. G. Crookshank, and is such as will be approved by the busy general practitioner. Inflammatory conditions of the lining membranes of the nasal passages are exceedingly common at all ages and among every class, and in many tuberculous subjects form a morbid condition which gives rise to much discomfort and hinders recovery. The manual opens with an account of the physiology and pathology of intranasal structures, but the greater part is devoted to a detailed consideration of therapeutic procedures and non-operative measures. There are also chapters on frontal, maxillary, and ethmoidal sinusitis. At the end of each chapter is a useful bibliography. Dr. Yates may be congratulated on having provided a really effective guide to the treatment of a group of widely prevalent and much neglected naso-pharyngeal troubles.

Dr. J. Mennell's monograph on backache is something of a novelty in medical literature. It certainly meets a real need, for there is no doubt but that the differential diagnosis and treatment of the various

¹ "Procedure in Examination of the Lungs, with Especial Reference to the Diagnosis of Tuberculosis." By Arthur F. Kraetzer, M.D., Instructor in Medicine, Cornell University. With a Foreword by James Alexander Miller, M.D. Pp. xiv+125. New York and London: Oxford University Press, 114, Fifth Avenue, New York, and Clarendon Press, Oxford. 1930. Price \$2.00.

² "The Modern Treatment of Nasal Catarrh." By A. Lowndes Yates, M.D., F.R.C.S.E., Hon. Assistant Surgeon Ear and Throat Department, Prince of Wales Hospital. Pp. 160. London: Jonathan Cape, Ltd., 30, Bedford Square, W.C. 1. 1931. Price 5s.

causes of backache remains to a large extent a *terra incognita*.¹ Everyone at times seems to suffer with backache, and but few have any extensive and accurate knowledge regarding its pathology or can give reliable directions as to its prevention and arrest. Dr. Mennell has explored the whole field, has studied the literature of the subject, and has investigated methods of inquiry and treatment which have been of service in America and elsewhere. His excellent monograph not only provides a comprehensive survey, but sets forth methods of diagnosis and practical measures for prophylaxis and treatment which should be known to every medical adviser. The study of backache is of great importance to those who are dealing with tuberculosis subjects, for not only is it a symptom of much value in cases of spinal tuberculosis, but it is also met with in many patients suffering from tuberculosis in other parts of the body. Dr. Mennell's wise words in regard to the examination and management of tuberculous subjects demands serious consideration, for, as he says, "It is a surprising fact that even qualified practitioners will sometimes run the risk of applying forcible manipulation to a back in a doubtful case," and, as he adds, "in unqualified hands this practice is, of course, still more common." A special feature of the book is the series of illustrations, prepared by Miss Margaret Morris, showing the various methods employed by the author in the examination and treatment of "backache" cases. The work is attractively arranged and excellently produced, and there is an ideal index. Every medical adviser should study Dr. Mennell's suggestive and informing monograph.

Mr. Frank H. Livingston, a layman who since 1904, and at the age of twenty-four years, has been afflicted with pulmonary tuberculosis apparently contracted in childhood, has written a serviceable account of tuberculosis as viewed from a patient's standpoint.² Every wise medical adviser dealing with a tuberculous subject should endeavour to study the individual and his circumstances and disease from the patient's outlook. Mr. Livingston's record of experiences and practical exposition will certainly help tuberculosis officers and others to understand the psychology of the tuberculous sufferer. The author has manifestly studied himself and his disease without prejudice and with a considerable measure of scientific precision, and although we do not agree with all his recommendations regarding treatment we have no hesitation in saying that on the whole the book is sane and serviceable and such as will be helpful to many tuberculous patients in maintaining a courageous and effective struggle.

Dr. Earl D. McBride has produced a concise, lucid, illustrated handbook on the care of crippled children which will appeal to doctors, nurses, social workers and others, particularly orthopaedic assistants, engaged in services seeking the assistance of deformed and cripple children both in America and in this country.³ The author rightly

¹ "Backache." By James Mennell, M.A., M.D., B.C., Medical Officer, Physico-Therapeutic Department, St. Thomas's Hospital. Illustrated by Margaret Morris. Pp. viii+199, with 48 illustrations. London: J. and A. Churchill, 40, Gloucester Place, Portman Square. 1931. Price 12s. 6d.

² "Tuberculosis: Its Cause, Prevention, and Care." By Frank H. Livingston. Pp. xii+191. New York: The Macmillan Company. London: Macmillan and Co., Ltd. 1930. Price 10s. 6d.

³ "Crippled Children: Their Treatment and Orthopaedic Nursing." By Earl D. McBride, B.S., M.D., F.A.C.S., Instructor in Orthopaedic Surgery, University of Oklahoma School of Medicine, etc. Pp. 280, with 159 illustrations. London: Henry Kimpton, 263, High Holborn, W.C. 1931. Price 15s.

points out in his preface that if the surgeon's work is to succeed, there must also be co-operation with the social workers and the parents concerned for the care of the afflicted child. The author's aim is clearly defined as "imparting knowledge to those of unscientific training who are interested in the relief of deformities and physical handicaps—especially of children." The work consists of thirty-four chapters, setting forth in readily understood language and helpful illustrations the essentials of orthopædic equipment, technique, methods, nursing and general management. There are chapters dealing with joint tuberculosis, special attention being directed to tuberculous involvement of the spine and the hip and knee joints. An appendix provides definitions of orthopædic terms, and there is a serviceable index.

Dr. G. C. Cathcart's handbook describing the Electrophonoïde method of Zünd-Burguet for the treatment of chronic deafness, first issued in 1926, has now passed into its second edition.¹ The work has been brought up to date, and the author has added to his record of cases. Criticisms regarding the method advocated as well as those directed to the author's book are met. Dr. Cathcart concludes the preface to the second edition of his book thus: "I am of opinion from my own experience that until some better form of treatment is invented or discussed no aural specialist can consider himself fully equipped to undertake the treatment of chronic deafness unless he has a Zünd-Burguet electrophone." The book is issued as a member of the Oxford Medical Publications and is excellently produced.

Messrs. Ward, Lock and Co. are the publishers of a fine series of beautifully illustrated volumes for garden lovers and dealing with all aspects of gardening. Prominent among these is Mr. Coutts's impressive and most practical guide to everyday gardening.² The author's name and position is a guarantee that this work is up-to-date, reliable and authoritative. It is indeed an exceptionally comprehensive and detailed handbook, practical and interesting, and particularly attractive, being excellently printed and generously illustrated. We commend it to the attention of readers of this JOURNAL. Gardening in most of its many forms provides an ideal occupation for persons who have on health grounds to follow an open-air life, and also appeals to numerous doctors and others as providing just the kind of hobby and pastime which is truly recreative for those who have to live a strenuous professional life. A glance at Mr. Coutts's beautiful book should stimulate all who love flowers to become skilled gardeners. It provides information and direction regarding matters relating to the formation of all kinds of gardens and their preservation and equipment. A considerable section is devoted to an alphabetical directory of flowering plants and ornamental and flowering trees and shrubs. This will be of special service to those responsible for the laying out of sanatorium grounds and the formation of gardens in connection with schools and other institutions. A very practical section is that which deals with the vegetable garden.

¹ "The Treatment of Chronic Deafness by the Electrophonoïde Method of Zünd-Burguet." By George C. Cathcart, M.A., M.D., Consulting Surgeon to the Throat, Nose and Ear Hospital. Second edition. Pp. xiii + 111, with 7 figures. London: Humphrey Milford, Oxford University Press, Amen House, Warwick Square, E.C. 4. 1930. Price 5s.

² "Everyday Gardening." By J. Coutts, M.H.R.H.S., Deputy Curator of the Royal Botanic Gardens, Kew. Pp. 448, with 8 plates in colour, 32 full-page illustrations from photographs, and many diagrams. London: Ward, Lock and Co., Ltd., Warwick House, Salisbury Square, E.C. 4. 1931. Price 7s. 6d.

There is also a description of common diseases and pests which the conscientious gardener is called to deal with. We know of no more complete, helpful, and lavishly illustrated work on gardening than the monumental volume which Mr. Coutts has provided, and it is issued at a very moderate price.

Professor Winslow's elaborate study of health conditions in a typical rural county of the north-eastern United States, made possible by the generosity and wisdom of those who administer the Milbank Memorial Fund from 49, Wall Street, New York City, deserves the study of medical officers of health in America and in this country responsible for organization and administration of health services.¹ This impartial and comprehensive survey of seven years' experience of the Cattaraugus County Health Demonstration is a model of public health exposition. It is arranged in sixteen chapters, dealing with such subjects as the Problems of Rural Health, Quality of Basic Public Health Activities, Hygiene of Maternity, Infancy and Childhood, Social Service, Statistical Results, and Cost. There is a lengthy chapter relating to tuberculosis in which is described the programme which was carried out—intensive case-finding, provision for adequate medical and nursing care, post-graduate training, follow-up service, the use of sanatoria, provision for rehabilitation, etc. The work is admirably illustrated, but it is unfortunate that the plates have no descriptive texts.

Miss Sawyer, author of "Everyday Art at School and Home," has prepared another charming work rich in practical directions and serviceable suggestions which will be appreciated by art teachers and others.² We particularly commend the book to those who are guiding the artistic activities of boys and girls in open-air schools. The numerous illustrations add much to the value of Miss Sawyer's excellent exposition of perspective.

Upholstery is a form of remunerative and interesting manual work which is finding favour both with patients and teachers in occupation-therapy centres, tuberculosis settlements, sanatoria, and special schools.³ The little work on simple upholstery prepared by Miss D. M. Hart and John Halliday only needs to be known to be appreciated. It provides adequate instruction and particulars for the conduct of a class of a dozen persons, together with detailed directions (with illustrations) for the carrying out of a series of effective constructions.

¹ "Health on the Farm and in the Village: A Review and Evaluation of the Cattaraugus County Health Demonstration, with Special Reference to its Lessons for Other Rural Areas." By C. E. A. Winslow, Dr. P. H., Professor of Public Health, Yale School of Medicine, New Haven, Conn. Pp. vii+281, with illustrations and charts. New York: The Macmillan Company. 1931. Price \$1.00.

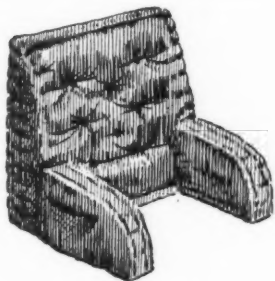
² "Perspective in Drawing." By D. D. Sawyer, Art Lecturer at the Diocesan Training College, Brighton. With an Introduction by Allen W. Seaby, Professor of Fine Art in the University of Reading. Pp. 60, with coloured frontispiece and illustrations. London: B. T. Batsford, Ltd., 15, North Audley Street. Mayfair, W. 1. 1931. Price 5s.

³ "Simple Upholstery for Schools and Institutes." By Dorothy M. Hart, organizer of Needlework, and John Halliday, organizer of Handwork to the Oxfordshire Education Committee. Pp. 58, with 49 figures. Leicester: The Dryad Press, 42, St. Nicholas Street. 1931. Price 3s. 6d. The Dryad Press also issues a General Handwork Catalogue, price 4d.

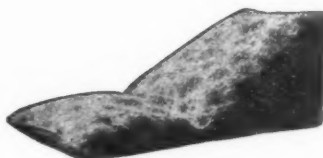
PREPARATIONS AND APPLIANCES.

HYGIENIC APPLIANCES AND THERAPEUTIC PREPARATIONS.

REST and the conservation of all physical energy stand foremost among prophylactic and therapeutic measures in dealing with the subjects of active tuberculosis, nervous deterioration, and other morbid states. There are many delicate and other sub-standard persons who, by careful regulation of their powers, are enabled to get through a fair day's work. To doctors and others who have to advise in regard to the management of all those who desire guidance and help in the regulation of rest, we commend "THE RESTALL" and "THE REST-ESI."¹ The essential features of these novel contrivances are indicated in the accompanying illustrations. These are designed and constructed to



"THE RESTALL."



"THE REST-ESI."

enable delicate subjects, convalescents, and all classes of patients to have the support of a suitable rest in bed, when reclining in the open, or when travelling in a motor car. Both these specialities will be of service in dealing with tuberculous cases, and will be of particular assistance to patients undergoing sanatorium treatment. (The prices are 59s. 6d. and 21s.)

The "EVERTAUT" STEEL CHAIRS AND STOOLS will be found admirable for use in hospitals, sanatoria, open-air schools, and consulting rooms.² The chairs are scientifically designed, skilfully constructed, and provide the maximum of comfort and efficiency. The provision of properly shaped seats with pivoted back-rests, allowing of a fore-and-aft movement and locking in any desired position, make these chairs and stools admirable for the use of patients. Castors are provided to all legs and a patent sprag prevents slipping if tipped. The stools have

¹ Particulars regarding "The Restall" and "The "Rest-esi" can be obtained from John Bell and Croyden, 50, Wigmore Street, W. 1.

² The "Evertaut" Steel Stools and Chairs and other equipment are manufactured by J. B. Brooks and Co., Ltd., of Criterion Works, Great Charles Street, Birmingham, from whom illustrated price lists can be obtained on application.

been specially designed and constructed to meet the needs of those who are engaged in works and offices. We strongly commend these modern seats to the notice of medical advisers, employers of labour, and all interested in the health and happiness of individuals.

THE BALKERNE GARDEN BARROW is a serviceable novelty admirably adapted for use by invalids, ladies, and others desiring to engage in open-air activities.¹ It is constructed of brown and white willow, mounted on a pair of rubber-tyre wheels, and stands firmly, or can be moved about quite easily. The chief features of this desirable receptacle are indicated in the figure which accompanies the advertisement which appears in the present issue of the JOURNAL. (The price is 15s. 6d.)

THE PATENT "EASY-GO" GARDEN BARROW,² described and illustrated in our advertisement pages, is a novelty which should be appreciated in the garden work of sanatoria, open-air schools, and tuberculosis settlements where patients are undergoing occupation-therapy. The barrow is of British manufacture, and is specially designed to lighten labour, save time and trouble, and generally facilitate open-air and garden services. The barrow is mounted on iron or rubber-tyred wheels, and both sides are readily removed to simplify emptying. (The price, carriage paid, is 52s.)

THE CORY ELECTRIC TONGUE-DEPRESSOR, introduced by Dr. F. W. Cory, consists of a small electric torch fitted into a glass sheath, and having attached a sliding metal tongue-depressor, as shown in the accompanying figure. The light from the dry battery is readily



THE CORY ELECTRIC TONGUE-DEPRESSOR.

switched on as required. This appliance will be of much service in examining the pharynx, particularly in the case of young subjects. It is supplied by Reynolds and Branson, Ltd., 13, Briggate, Leeds. (The price is 10s. 6d.)

THE "TYPHOO" CLINICAL THERMOMETER is being supplied to medical advisers by the well-known firm of Sumner's "Typhoo" Tea, Ltd., who provide "Typhoo" tea, justly approved and recommended by many doctors.³ The thermometer is one of the most convenient, reliable, and generally effective now available. It is accurate, self-setting, fitted with magnifying lens, and the markings are clear. There is no need for irritating, time-wasting shaking to set the mercury. The thermometer is certified by the National Physical Laboratory, and every doctor desiring a convenient and reliable register of temperatures should secure one.

¹ The Balkerne Garden Barrow is manufactured at the Lord Roberts Memorial Workshops, Magdalen Street, Colchester, from whence other practical appliances for garden use can be obtained.

² The Patent "Easy-Go" Garden Barrow is manufactured by the Patent "Easy-Go" Barrow Company, 131, Bunhill Row, E.C.

³ Particulars regarding the "Typhoo" Thermometer can be obtained on application to Sumner's "Typhoo" Tea, Ltd., Bordesley Street, Birmingham.



THE BALLOON AIR CUSHION.

THE BALLOON AIR CUSHION is a desirable equipment for all hospitals, sanatoria, nursing homes, and every place where bed-fast cases have to be cared for.¹ It is a valuable agent in the management of the sick, and particularly in preventing the development of bedsores. It is a great improvement on the old-fashioned water and air cushions. The new seamless cushion automatically fills itself, and dispenses with the non-hygienic and troublesome method of blowing up. (The prices are 7s. and 8s., according to size.)

The "LAUREL" SAFETY RAZOR is the neatest, cheapest, and most effective of the many varieties which appeal to shavers.² It is entirely of British make. For use in sanatoria and by patients undergoing treatment it is particularly convenient. The construction is simple but effective, and cleansing is easy. The blades are admirable, each allowing for a number of satisfactory shaves. (The price per set complete is 2s. 6d.; extra packets of four blades in each, 6d.)

SORBO SPONGES are rubber specialities which are valuable agents in the maintenance of personal hygiene.³ They are available in various forms and sizes and contain 90 per cent. of pure new rubber, having a cellular construction which closely approximates to that of a natural sea sponge and allows of a high degree of absorbency. The Sorbo Sponge is soft and pleasant to use, can be used with soap and disinfectants, hot water, and will even stand boiling. For use in hospitals, sanatoria, nursing homes, and other institutions, as well as for domestic service generally, the Sorbo Sponge is ideal. (Prices range from 6d. to 2s. 6d.)

THE ADDIS WINGED DENTAL PLATE BRUSH should be in the possession of everyone who wears a denture.⁴ The owner of artificial teeth should exercise scrupulous care in maintaining them in a strictly hygienic condition. This is not always easy. But the admirable brush provided by the long-established firm of Addis of Hertford makes the cleaning of dental plates easy and effective. It is skilfully designed and splendidly constructed with genuine, unbleached, strong, stiff, trimmed bristles, scientifically arranged to carry out cleansing thoroughly and quickly. We would specially commend the use of this hygienic appliance to patients with dentures in hospitals, sanatoria, nursing homes, and elsewhere. Only too frequently this matter is overlooked or neglected, and in the case of consumptives and other tuberculous cases it is of the first importance that oral hygiene should

¹ The Balloon Air Cushion is supplied by Adam Dutt and Co., Ltd., Mortimer House, 37-41, Mortimer Street, W. 1.

² The Laurel Safety Razor and Blades are made by George H. Lawrence, Ltd., 13, Brunswick Road, Sheffield.

³ Particulars regarding Sorbo Sponges and other Sorbo products can be obtained from the manufacturers, Sorbo Rubber-Sponge Products, Ltd., Woking, Surrey.

⁴ Particulars regarding the Addis Tooth Brushes and Dental Plate Brushes can be obtained on application to Addis and Co., Brushworks, Hertford, Herts.

be strictly maintained, not only in the sanatorium but at home. We may further note that Messrs. Addis have made for Kolynos Incorporated THE KOLYNOS DENTAL PLATE BRUSH.¹ This has been specially designed for the effective cleansing of all parts of dental plates when used in conjunction with Kolynos Denture Powder. (The price is 2s.)

THE ASPREY IDEAL FOOT AND LEG REST² is a practical appliance which will appeal both to the sick and the sound. It will be of much service in sanatoria, hospitals, nursing homes, and in private residences where invalids and patients are undergoing a local and general rest cure and require comfort without effort. For tuberculous subjects and other delicate persons having to spend time under open-air conditions this scientifically designed support will be of great value. It consists of an automatically adjusting folding appliance with foot and leg pieces of sufficient size to support both lower extremities when the user is on any form of chair or other seat. It is available in oak with cork panel and soft rexine for the legs (price £1 1s.), in mahogany with cork panel (price £1 12s. 6d.), and other styles (prices ranging up to £5 7s. 6d.). The rest folds up flat into a small space for travelling in tram or car or for storage. This sensible appliance should be found in all clubs, hotels, and other places where men and women desire rest under comfortable conditions. It forms a welcome present for a hard-pressed doctor, nurse, or other strenuous worker.

ASPREY'S PATENT BOOKMARKER will be appreciated by all book-lovers, and it will specially appeal to invalids and patients in hospitals, sanatoria, and elsewhere who find in books their most welcome companions.³ This ingenious novelty consists of a slide which fits the top of the back cover of the book together with an arm which is brought over the page, and with its attached pointer allowed to rest a quarter of an inch from the edge of the book. A slight bulge to the page frees it from the arm and allows for turning over. The bookmark is not detached until the book is read through. (Prices: silver, 13s. 6d.; gold, £1 15s. to £3 3s. 6d.)

THE "BONNAIRE" DEODORIZER is a sanitary novelty which should add to the hygienic efficiency of water-closets.⁴ It consists of a metal receptacle into which is placed a disinfectant and deodorizing special solution, attached above to the chain which works the lever of the water-cistern, while below is the lower chain and handle. When in use at each pull of the handle a spring arrangement liberates the "Bondrant" fluid in the form of a fine spray, so rendering the air of the lavatory pleasant. The Deodorizer can be obtained in chromium plated finish. A model is available for use in lavatories and bathrooms where action is obtained by means of a lever instead of a chain pull. (The price of nickel plated model is 12s. 6d.)

BOOTS HYGIENIC HANDKERCHIEFS are sanitary agents of considerable

¹ The Kolynos Dental Plate Brush and Kolynos preparations can be obtained from Kolynos Incorporated, Chenies Street, W.C. 1.

² The Asprey Ideal Foot and Leg Rest is supplied by Asprey and Co., Ltd., 166, New Bond Street, W. 1.

³ The Asprey Patent Bookmarker is supplied by Asprey and Co., Ltd., 166, New Bond Street, W. 1.

⁴ Full particulars regarding the "Bonnaire" Deodorizer and the "Bondrant" deodorizing solution may be obtained from Bonnaire Deodorizer, Ltd., 9, Percy Street, W. 1.

value.¹ A number of diseases, including tuberculosis, influenza, and infectious catarrhs, are spread by sputum and secretions from nose, throat, and respiratory passages. Cough is a great disseminator of trouble. A suitable, properly used and effectively disposed of handkerchief is an important prophylactic as well as a serviceable equipment for the patient. Boots handkerchiefs are available in a variety of forms, sizes and qualities. They should be used generally, and for use in connection with sanatoria, schools, hospitals, and other institutions they are indispensable. Special handkerchiefs, medicated, absorbent, waterproofed and made of silky, soft material, are provided for use in infectious and other catarrhs. Sufferers from asthma, hay-fevers, and other morbid states in which nasal discharges occur will find Boots Paper Handkerchiefs invaluable. A velvet crêpe form is particularly popular. All these modern hygienic contrivances are provided at reasonable rates, and every handkerchief can be readily destroyed after use.

"BRONCO" PERFORATED TOILET PAPER is an excellent form of sanitary necessity.² It is supplied in rolls each containing approximately 800 sheets. The paper is thin, strong, and yet soft, and meets all hygienic requirements, being antiseptic, non-irritant, and free from deleterious matter. It is employed extensively in sanatoria, hospitals, and other institutions, and does not lead to stoppage of drains or other inconvenience. Moreover, this toilet paper is economic and avoids litter and untidiness.

KLENSPAN is a sanitary novelty which will be of service in maintaining water-closets, both in private houses and institutions, in a hygienic condition.³ It consists of a white china container attached by means of a rubber suction pad to the side of the lavatory pan, and containing a block of antiseptic and deodorizing material. Every time the flush is used water passes automatically through the container and forms a solution which cleans pan and trap, and prevents incrustation and foul odours. (The price complete is 2s. 6d., or with four refills 4s. 3d.)

ROSEOMAR PERFUMED DISINFECTANT is a preparation which will be appreciated in hospitals, sanatoria, nursing homes, and other centres where sick persons are being nursed.⁴ It consists mainly of formaldehyde, together with essential oils, the standard perfumes employed being those of lavender, wallflowers, and carnations. Roseomar is a pleasing safe deodorant and germicide which can be sprayed without damage. It is also useful in affording protection from mosquitoes and other pests.

THE RAWPLUG FLEXIBLE STEEL RULE, now available in a so-called De-Luxe Spring Model, is a practical novelty which will appeal to many doctors and other readers of this JOURNAL.⁵ It will be found of special service to medical superintendents of hospitals, sanatoria, and other institutions. This marked rule is made of flexible steel which

¹ Prices of Boots Hygienic Handkerchiefs can be obtained on application to Messrs. Boots, Station Street, Nottingham, or at any of Boots branches.

² The "Bronco" Perforated Toilet Paper is made by the British Patent Perforated Paper Company, Hackney Wick, E. 9

³ Klemspan is supplied by Vesta Utilities, Ltd., 219-211, Edgware Road, W. 2.

⁴ Particulars regarding Roseomar may be obtained from the manufacturers, Smith and Smith, Ltd., 27, Oswald Street, Glasgow, C. 1.

⁵ The Rawlplug Flexible Steel Rule is manufactured by the Rawlplug Co., Ltd., Rawlplug House, Cromwell Road, S.W. 7.

pulls out of a circular nickel case, and is controlled by a special ratchet, and is released by simply pressing a button. This pocket companion will be invaluable to all who for scientific or other practical purposes desire to make reliable measurements with the minimum of trouble and the maximum of effectiveness.

COLRON is the designation given to a new series of wood dyes introduced by the manufacturers of the Ronuk Specialities.¹ These provide permanent, penetrating, preservative stains which can be obtained in six different shades. These preparations can be easily applied to all kinds of wood, and are inexpensive and yet produces excellent results.

DIXON'S FLOOR PAINTS are excellent hygienic, decorative, and protective products, well suited for use not only in the ordinary home but in hospitals, sanatoria, and other institutions where a high standard of cleanliness must be maintained.² We can testify to the admirable results obtained. The paints are suitable for application to either wood or stone surfaces. They contain no lead preparations and provide a glossy finish which can readily be kept in good condition.

THE SZERELMEY STONE LIQUID is a composition which will be found of service by all who are responsible for the care of buildings.³ It is for application to outside walls of brick, stone, cement, rough-cast, and the like, whether for hospitals, sanatoria, or private dwellings. By its use buildings are preserved and protected from the entry of rain and damp. The preparation can easily be applied and is inexpensive. It has been extensively used with satisfaction in all parts of the country.

WRIGHT'S LIQUOR CARBONIS DETERGENS and other coal-tar products have for many years found favour with doctors, nurses, and all responsible for the sanitation of hospitals, sanatoria, schools, and other institutions, as well as those undertaking domestic duties.⁴ Coal tar in its purified form is invaluable as a prophylactic and therapeutic agent, and particularly in maintaining a healthy cutaneous condition in both the sick and the sound. For use with many tuberculous subjects Liquor Carbonis Detergens is of special service. It is available in several forms, and special reference may be made to the ointment and various kinds of soap. We would also direct attention to Wright's Lysol as a reliable and effective antiseptic and germicide.

¹ Particulars regarding the Colron Wood Dyes can be obtained on application to Ronuk, Ltd., Portslade, Near Brighton.

² Dixon's Paints are supplied by C. R. Averill, Ltd., 22, Duke Street, Stamford Street, S.E. 1, from whom full particulars can be obtained on application.

³ Particulars and prices regarding the Szerelmey Stone Liquid can be obtained on application, with a copy of a serviceable booklet on "The Cause and Cure of Damp and Decay in Masonry," from the makers, Szerelmey, Ltd., Szerelmey Works, 273-277, Rotherhithe New Road, S.E. 16.

⁴ Liquor Carbonis Detergens and Wright's other cleansing, disinfectant, and sanitary preparations are manufactured by Wright, Layman and Umney Ltd., 44-50, Southwark Street, S.E. 1, from whom particulars can be obtained on application.

THE OUTLOOK.

TUBERCULOSIS AND THE MINISTRY OF HEALTH.

Sir George Newman's Annual Report "On the State of the Public Health" is a document of far-reaching importance, and merits the serious study not only of every medical officer of health, but of all citizens interested in measures making for the increase of health and happiness in this country.¹ A special section is devoted to tuberculosis, in which statistical data and other information are presented in a particularly interesting and informing manner. The number of deaths from all forms of tuberculosis registered in England and Wales during 1930 was 35,745, as compared with 37,990 in 1929, and 36,623 in 1928. The death-rates from all forms of tuberculosis per million population during 1930 were: males, 1,037; females, 770; persons, 898. The death-rates from pulmonary tuberculosis were 863 per million population among males and 624 among females. The deaths from non-pulmonary tuberculosis are actually half of those in 1918. Detailed statistical tables relating to tuberculosis appear in the appendix.

The distribution in mortality varies widely from area to area, and the rate of decline also varies considerably at different ages and at the same age in the two sexes. At some ages the decline in mortality over a number of years is found to be small or even non-existent. Here is manifestly a wide field for exploration. Why should there be a failure to decline in young adult females? The reasons are obscure. Sir George Newman's statements and provisional suggestions are as follow: (1) The change commenced before the war. (2) Town dwellers are more affected than country dwellers. (3) There does not appear to be any connection between high mortality at this age and overcrowding. (4) The higher incidence of mortality in females begins to show before puberty. (5) Stress of life among young women has materially increased since the latter part of the nineteenth century. (6) The age period at which this cause produces its maximum effect in women is from twenty to twenty-five. Notification of tuberculous cases is of primary importance, for it furnishes the starting-point for all measures directed to prevent the spread of infection, and it is essential for epidemiological investigation. But notification is still imperfectly carried out, and a certain proportion of new cases of tuberculosis come to the notice of medical officers of health otherwise than through formal notification. Notification is most imperfect at the extremes of life, and more imperfect in respect of non-pulmonary than of pulmonary tuberculosis. It is estimated that over 50 per cent. of children who die from tuberculosis in early childhood die from tuberculosis caused by tubercle bacilli of human origin. The Report reviews the progress of the State Tuberculosis Schemes, and an important section is devoted to a description of developments now in progress of after-

¹ "On the State of the Public Health." Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1930. Pp. 261. London: H.M. Stationery Office, Adastral House, Kingsway, W.C. 2. 1931. Price 4s.

care work. There is also a section on education in tuberculosis, in which the aims and work of the National Association for the Prevention of Tuberculosis are described. In the chapter devoted to a consideration of the relation of food to health and disease there is a section on milk and tuberculosis, in which the following statement appears: "In the absence at the present time of any practical means of completely eradicating tuberculosis from the herds of the country, proper pasteurization affords a solution of the difficulty, and supplies a means of rendering the ordinary milk supply safe."

TUBERCULOSIS AND THE HEALTH OF THE SCHOOL CHILD.

Sir George Newman's last Annual Report as Chief Medical Officer of the Board of Education is as usual a document of exceptional interest, and rich in valuable facts and promising suggestions.¹ Medical inspection as now carried out by the State has three purposes: (1) To find if there be anything abnormal in the child's body or mind which needs correction in order that it may take full advantage of the education provided; (2) to get such defect corrected or ameliorated promptly and effectually; (3) to put the child in the way of health, that it may grow into a healthy, strong, capable, and happy workman, physically and mentally. The total amount of time given by the medical officers of the School Medical Service is equivalent to the whole-time service of 652 officers, or approximately one to 7,600 school children. The total number of nurses in the service of local education authorities is 5,485, of whom 2,326 are district nurses not directly employed by the authorities. The number of children inspected in the specified age groups during 1930 was 1,770,779, or 35·8 per cent. of those in average attendance. In addition, 968,518 children were referred for some special reason by parents, nurses, school teachers, or attendance officers. The total number of 2,739,297 children thus passed under review represents 55·4 per cent. of the average attendance. The number of re-inspections carried out was 1,897,320. In the course of the routine inspections, pulmonary tuberculosis was reported as (a) definite in 409 children, or an incidence per 1,000 of 0·2; (b) suspected in 1,411, or an incidence per 1,000 of 0·8. Cases of non-pulmonary tuberculosis are given as 1,558, or an incidence per 1,000 of 0·9. In the course of the special inspections pulmonary tuberculosis was reported as (a) definite in 928, and (b) suspected in 4,413; and non-pulmonary tuberculosis as 2,563. Accommodation is now available for 10,162 children in day open-air schools and 3,278 in residential, an increase of upwards of 2,200 places, as compared with the number so classified a year ago. Increasing thought is being given to the question how open-air schools may best be designed and conducted to combine fresh-air principles with the maximum of efficiency and physical well-being on the part of teachers and children. At the present time 80 per cent. of the school building plans submitted to the Board for approval contain proposals for throwing open to the outside many of the classrooms. Treatment

¹ "The Health of the School Child." Annual Report of the Chief Medical Officer of the Board of Education for the Year 1930. Pp. 125. London: H.M. Stationery Office, Adastral House, Kingsway, W.C. 2. 1931. Price 2s.

of school children by ultra-violet irradiation is at the present time being carried out in sixty-eight artificial light clinics under local education authorities. After considering the various morbid conditions in which actinotherapy is being employed, including tuberculous conditions, Sir George Newman arrives at the conclusion that "treatment by artificial light has a constructive place in the School Medical Service," but he wisely adds: "In all cases submitted to this form of treatment it must in no sense be regarded as a substitute for proper feeding, natural sunlight, and improved environment." A particularly important chapter is devoted to a consideration of Progress in the Prevention and Treatment of Crippling Defects. Here a valuable table is given setting forth the deaths from tuberculosis in childhood from 1921 to 1930. For children of school age the death-rate from non-pulmonary tuberculosis has been practically halved in the last twenty years. In the last ten years there has been a decline in the number of deaths from tuberculosis of all forms in childhood. The fall has been greatest in abdominal tuberculosis, particularly among young children (64 per cent.). Among children in the school age period of five to fifteen years the fall has been greatest in tuberculosis of the bones and joints (45 per cent.) and of the lungs (41 per cent.). In attempting to explain this fortunate decline in the killing powers of tuberculosis in early life Sir George Newman writes as follows: "The facts which are producing the favourable change in the incidence and mortality of tuberculosis are various and complex. No one of them is solely responsible for the reducing effect. They are co-operative and overlapping. We have grounds for putting first (1) the general improvement in the health and social life of the people as a whole; better nutrition, more cleanliness of person and home, more living in the sunlight and fresh air, less overcrowding, fewer children at risk. Secondly, there is (2) a lessened risk for the child if the consumptive parent is removed to another house or a sanatorium, or is more careful not to infect other members of the family with the disease. (3) There has been an enormous extension of child welfare, including maternity and child welfare work and the school medical service. (4) An increased use of milk free from tuberculosis has been practised—*e.g.*, breast feeding in infancy, pasteurized milk, and milk from tuberculin-tested cows. There has been, particularly since 1925, a wide extension of schemes and facilities for the effective medical and surgical treatment of the cripple. At the back of all these there may well be a biological change, imponderable and difficult to measure, by which the English people are undergoing some degree of racial immunization against this disease, or possibly even that the types of tubercle bacillus are less virulent than formerly. We do not know; but we do know that everything which lessens massive or long-continued infection, or increases and fortifies the powers of the body's resistance to such infection, contributes to the reduction of suffering and mortality from tuberculosis."

NOTES AND RECORDS.

The executive committee of the International Union against Tuberculosis, incorporated with the Netherlands Association against Tuberculosis, has arranged for the eighth international conference organized by the Union to be held at The Hague and Amsterdam, September 7-9,

under the chairmanship of Professor Nolen. The following subjects have been selected for discussion: (1) "Relationship between Allergy and Immunity," opening report by Professor Jules Bordet (Belgium); (2) "Gold-Therapy," opening report by Professor Sayé (Spain); (3) "After-Care Schemes for the Tuberculous," opening report by Dr. Vos (Netherlands). Reports will be submitted by ten speakers, and will be followed by a free discussion open to all members of the International Union, as well as to members of the conference officially nominated by National Associations affiliated with the Union. The Netherlands Association against Tuberculosis will organize a study tour for the members of the conference. Full particulars may be obtained on application to the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, W.C. 1.

The annual congress of the Royal Institute of Public Health will be held this year in Belfast, May 10-15, under the presidency of the Marquis of Londonderry. A section is to be devoted to tuberculosis. Particulars may be obtained on application to R.I.P.H. offices at 37, Russell Square, W.C.

The Forty-third Annual Congress and Health Exhibition of the Royal Sanitary Institute will be held at Brighton from July 9-16, under the presidency of Lord Leconfield, Lord-Lieutenant of Sussex.

The Postmaster-General has recently drawn attention to the importance of providing proper and approved receptacles for sputum and other pathological material when sent through the post for medical examination. All such parcels should be conspicuously marked "pathological specimen."

We are glad to welcome *The Journal of Thoracic Surgery*, the official organ of the American Association for Thoracic Surgery, under the editorship of Dr. Evarts A. Graham, St. Louis, and a representative advisory editorial board. The new journal is to be published bi-monthly by the C. V. Mosby Company, 3523, Pine Boulevard, St. Louis, U.S.A. Annual subscription \$7.50.